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Supreme Court of the United States

OCTOBER TERM, 1978

No. 78- 535

THE SHELL OIL COMPANY, *Petitioner,*

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, et al., *Respondents.*

PETITION FOR A WRIT OF *CERTIORARI* TO THE UNITED STATES COURT OF APPEALS FOR THE SIXTH CIRCUIT

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v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, et al., *Respondents.*

PETITION FOR A WRIT OF *CERTIORARI* TO THE UNITED STATES COURT OF APPEALS FOR THE SIXTH CIRCUIT

Petitioner, The Shell Oil Company ("Shell"), respectfully prays that a writ of *certiorari* issue to review the judgment and opinion of the United States Court of Appeals for the Sixth Circuit ("Sixth Circuit") entered in this proceeding on June 29, 1978 in which the Sixth Circuit upheld the sulfur dioxide ("SO_2") implementation plan for the State of Ohio and its emission limitations applicable to Shell promulgated by the United States Environmental Protection Agency ("Agency" or "EPA").

OPINION BELOW

The Sixth Circuit's opinion is officially reported as *Cincinnati Gas & Electric Co.* v. *Environmental Protection Agency,* 578 F.2d 660 (6th Cir. 1978), and appears as Appendix A. It is unofficially reported at 2 CCH PCG ¶ 40,157.[1]

JURISDICTION

The judgment of the Sixth Circuit was entered on June 29, 1978, and is appended hereto as Appendix D. This petition for writ of *certiorari* was filed within 90 days of that date. This court's jurisdiction is invoked under 28 U.S.C. § 1254(1).

QUESTIONS PRESENTED

1. Whether the Sixth Circuit violated the standard of judicial review and contravened the Clean Air Act when it: (a) upheld EPA's use of an air quality model which improperly accounted for the effect of hilly terrain in calculating emission limitations for Shell's plant; (b) failed to address Shell's comment that EPA's model utilized a shortcut equation to predict air quality concentrations, when use of the full form of that equation would eliminate the need for emission reductions for Shell; and (c) on the basis of information not found in the record, upheld EPA's rejection of Shell's alternative, more economical approach for establishing emission limitations?

---

[1] A related order addressing a motion for clarification, officially reported at 578 F.2d 666, is appended as Appendix B. An earlier, related opinion of the Sixth Circuit in this proceeding, *Cleveland Electric Illuminating Co.* v. *Environmental Protection Agency,* 572 F.2d 1150 (6th Cir. 1978), is appended as Appendix C.

2. Whether EPA deprived Shell of its statutory right of comment in a rulemaking proceeding and due process of law by failing to respond to material comments submitted by Shell?

3. Whether EPA acted arbitrarily and capriciously and in contravention of the Clean Air Act when it used, without appropriate consideration of available air quality monitor data, an air quality dispersion model not shown to be reliable or realistic to determine SO_2 emission limitations for Shell's plant?

4. Whether it is arbitrary and capricious and in violation of the Clean Air Act for EPA to reject less costly alternative emission control strategies when such alternatives are shown to be available?

CONSTITUTIONAL PROVISION, STATUTES, AND REGULATIONS INVOLVED

This case arises under the Clean Air Act. The pertinent provisions of it, as well as the constitutional provision and other statutory provisions involved and the regulations being reviewed, are appended hereto as Appendices E through I, pp. 68a-105a.

STATEMENT OF THE CASE

A. Nature of the Case

This case presents clear and exceedingly important questions impacting upon those fundamental rights and procedures which are necessary to assure the integrity of the notice and comment rulemaking process and to provide for adequate judicial review of the rules resulting from that process. These procedures

are uniquely important in this case since § 307(b)(2) of the Clean Air Act potentially bars further judicial consideration of the questions presented below. 42 U.S.C. § 7607(b)(2).

B. History of the Case

This is a review of EPA's regulations establishing SO_2 emission limitations for Shell's plant as part of EPA's promulgation of an SO_2 implementation plan for Ohio.

EPA's plan was first proposed in November, 1975, and promulgated in August, 1976, under 42 U.S.C. § 1857c-5(c)(1) (recodified at 42 U.S.C. (7410(c)(1)). In November, 1976, in response to petitions for review and motions for stay of Shell and others, the Sixth Circuit stayed EPA's August 1976 regulations and *sua sponte* remanded them to the Agency for further comments. Shell submitted comments pursuant to this order.

On May 31, 1977, EPA repromulgated its plan without modification applicable to Shell. Therefore, Shell again filed a petition for review with the Sixth Circuit under § 307(b)(1) of the Clean Air Act, 42 U.S.C. § 1857h-5(b)(1) (recodified at 42 U.S.C. § 7607(b)(1)). Its case was ultimately decided on June 29, 1978.

EPA's plan limits the amount of SO_2 that may be emitted from the boilers supplying steam and heat essential for the operation of Shell's chemical manufacturing plant located in the hills of rural southeastern Ohio. Compliance with the plan will force Shell to burn low sulfur coal, thereby expending hundreds of thousands of dollars annually.

EPA's exclusive basis for the imposition of these SO_2 emission limitations is an air quality dispersion model called MAXT-24. Dispersion models are computerized equations intended to predict the way in which SO_2 disperses after it is emitted from the stack of a source. If the model overpredicts actual ambient SO_2 concentrations, it will result in the setting of emission limitations more stringent than necessary to meet ambient air quality standards. Such unnecessarily restrictive limitations are costly and bear no relation to the protection of public health.

C. Petitioner's Rulemaking Comments

During the rulemaking comment period, Shell submitted detailed written comments founded upon monitoring and modeling studies of its plant's emissions. These comments made the following four basic points.

First, Shell commented that both the State's monitor data and its own monitor data measured at points of expected highest SO_2 concentration in the vicinity of its plant did not show violations of ambient SO_2 standards. Thus, actual monitor data did not indicate a need for any further reduction of SO_2 emissions from Shell's plant.

Second, Shell commented that EPA used a shortened version of the Gaussian Plume Equation in applying MAXT-24. The Gaussian Plume Equation is the key equation in the model used to represent plume dispersion and thus to predict ambient concentrations. Shell, supplying supporting data, calculations, and analysis, informed EPA that, for Shell's plant (i.e., a source with stack heights nearly equal to or less than the heights of surrounding hills), this "short-

cut" in the Gaussian Plume Equation predicted concentrations twice as high as if the full form were used. Utilizing the full form of this equation, the MAXT-24 model predicts no ambient air quality violations attributable to Shell.

Third, Shell commented that MAXT-24 was not valid for sources, such as its plant, located in hilly terrain. The original model (called MAX-24) was designed for use on flat land and could not accurately predict concentrations in hilly areas. EPA's own documents confirm this. EPA made a change in the original model in an attempt to adjust for this deficiency, but the record demonstrates that EPA had neither theoretical support nor empirical justification for its change. In argument before the Sixth Circuit, counsel for EPA admitted that the statement in the record that EPA's adjustment had been validated by empirical data was incorrect. (Appendix A, p. 12a.) Shell offered EPA a sound alternative adjustment. Shell's suggestion was supported by expert opinion and its comparison of MAXT-24 predicted concentrations to observed concentrations at points of expected highest concentration. Shell's suggestion was also founded on the simple law of physics that wind and air cannot blow through hills, but blow over and around them.

With the terrain corrections suggested by Shell incorporated in MAXT-24, but with no other changes or adjustments to it, MAXT-24 predicts ambient SO_2 concentrations of one-half that predicted using EPA's methods. It predicts no violations of ambient air standards by Shell's plant.

Fourth, independent of the foregoing issues related to modeling, Shell requested that EPA express emission limitations applicable to the Shell plant in pounds of SO_2 per hour as opposed to pounds of SO_2 per million British thermal unit heat input. This change would allow Shell to burn higher sulfur content fuels at low operating rates while assuring ambient air standards were not violated under EPA's own prediction results. Thus, Shell proposed a more economical, yet equally effective, alternative to insure ambient air quality.

In the early proceedings in the case, EPA expressed the general concern that a pounds-per-hour emission rate would cause violation of ambient air standards due to the loss of plume dispersion capabilities at lower operating rates. Shell answered this concern in the comment period following the Sixth Circuit's remand order of November, 1976, explaining to EPA that the heat exchangers in its stacks keep plume dispersion capabilities equalized at all operating rates. Thus, Shell demonstrated that EPA's earlier, general concern did not apply to its plant.

D. EPA Response to Shell's Comments

EPA did not adequately respond to Shell's comments that actual measured air quality data around its plant did not demonstrate a need for emission reductions.

EPA did not address, in any manner, Shell's comment that it used an erroneously shortened version of the Gaussian Plume Equation.

EPA's response to Shell's terrain adjustment suggestions reduces to a statement that it could not tell

whether its adjustment or Shell's was better. (Appendix A, p. 12a.) This response ignores the empirical and expert support in the record for Shell and amounts to an excuse that is truly nonresponsive to the substantial material presented by Shell.

Finally, EPA rejected Shell's alternative pounds per hour strategy in silence. When Shell explained why EPA's earlier expressed fears concerning this alternative were baseless, EPA did not respond, rejecting the alternative based on its previous, generalized position.

E. Sixth Circuit Opinion

The Sixth Circuit failed to remedy EPA's lack of response to Shell's comments regarding the key technical issues in this case. The Sixth Circuit resolution of Shell's case is an example of what judicial review must not be.

The Sixth Circuit did not address Shell's comments that its ambient air data demonstrated no need for emission reductions.

More striking, the Sixth Circuit did not address the fact that by merely using the full Gaussian Plume Equation, EPA's model gave results that compared more favorably to ambient measurements, predicted only one-half the SO_2 concentrations predicted by the short version, and predicted no ambient violations by Shell.

The Sixth Circuit did give minimal consideration to Shell's argument that EPA's adjustment for hilly terrain was arbitrary. However, it declined to hold EPA's action arbitrary and capricious (Appendix A,

p. 12a). The Court reached this conclusion by apparently overlooking studies by Shell in the record which confirmed the propriety of Shell's suggested change, and by accepting EPA's unsupported adjustment in the light of overwhelming theoretical criticism.

Finally, based on a finding of administrative convenience in monitoring compliance, the Sixth Circuit brushed aside Shell's comment than an emission limit expressed in pounds per hour would maintain ambient air standards in a more cost-effective manner. The Sixth Circuit's reason, however, is entirely that of the court and is not to be found expressed by EPA in the record. The record simply does not show, and EPA did not state, that it is more difficult to monitor compliance under Shell's alternative.

REASONS FOR GRANTING THE WRIT

A. The Decision Below Deprives Petitioner of Those Fundamental Rights and Procedures Which Are Requirements of Rulemaking and Conflicts With Decisions of This Court and Other Circuits.

This case presents questions going to the heart of the rulemaking process—the right to comment and response. It does not invole a request for procedures in addition to those assumed by the Administrative Procedure Act ("APA") or the Clear Air Act as amended. Rather, Shell merely seeks to have assured those statutory minimums essential to the integrity of the process and to its review.

The APA, 5 U.S.C. § 553, guaranteed Shell the right to comment on EPA's proposed SO_2 plan and required EPA to consider all "relevant matter presented." The right to comment includes both the right to submit

comments and the right to have EPA respond to those comments. EPA is obligated to articulate a response on the record to material matters presented to it. *Vermont Yankee Nuclear Power Corp.* v. *Natural Resources Defense Council, Inc.*, — U.S. — (1978) (98 S. Ct. 1197, 1216-1217); *Portland Cement Association* v. *Ruckelshaus*, 486 F.2d 375, 394 (D.C. Cir. 1973), *cert. denied*, 417 U.S. 921 (1974). Not only was EPA response an obligation etched into the APA, but § 307 of the Clean Air Act, as amended in 1977, reaffirms that obligation to respond "to each of the significant comments, criticisms, and new data submitted." 42 U.S.C. §§ 7607(d)(3) and (6)(B). As this court and others have stated, material comments are those comments which show "that a particular mistake was made" and "why the mistake was of possible significance in the results." *Vermont Yankee Nuclear Power Corp.* v. *Natural Resources Defense Council, Inc.*, — U.S. — (98 S. Ct. at 1216-1217); *Portland Cement Association* v. *Ruckelshaus*, 486 F.2d at 394.

All of Shell's comments met this test of "materiality". Shell's ambient air data showed no need for emission reduction. EPA did not respond. Shell's analysis of the Gaussian shortcut showed that merely expanding EPA's own equation to its original form would result in no need for emission reductions. EPA did not respond. Shell's terrain adjustment comment was supported by both data and theory to which EPA did not adequately respond. Finally, Shell's specific explanation of why its pounds-per-hour alternative would meet ambient standards was not addressed by EPA.

B. The Opinion Below Conflicts With Those of This Court and Other Circuits in That the Sixth Circuit Failed to Engage in the Proper Review of Administrative Action.

EPA's error in failing to articulate a response to Shell's comments was compounded by the Sixth Circuit's misapplication of *Citizens to Preserve Overton Park, Inc.* v. *Volpe,* 401 U.S. 402 (1971). That case requires courts to engage in a searching inquiry of the administrative record to determine if the action was rational. It requires courts to consider whether the action was based upon all the relevant factors and whether it reflected a clear error of judgment. The Circuits have uniformly applied this standard to EPA rulemaking. For example, see *Ethyl Corp.* v. *Environmental Protection Agency,* 541 F.2d 1 (D.C. Cir. 1975), *cert. denied,* 426 U.S. 941 (1976); *South Terminal Corp.* v. *Environmental Protection Agency,* 504 F.2d 646 (1st Cir. 1974).

Since models are no more than computerized proxies for real data, the *Overton Park* test of rationality in cases such as this turns on the rationality or reliability of the model itself. In applying *Overton Park* to cases involving prediction, courts have required that the prediction methodology be shown in the record to be reliable, and that, in the absence of empirical confirmation, the agency involved provide a complete analytical defense of its model. *American Public Gas Association* v. *Federal Power Commission,* 567 F.2d 1016, 1039 (D.C. Cir. 1977); *South Terminal Corp.* v. *Environmental Protection Agency,* 504 F.2d at 655; *International Harvester Corp.* v. *Ruckelshaus,* 478 F.2d 615, 647-648 (D.C. Cir. 1973). As the Sixth Circuit opinion shows, the court approved EPA's regula-

tion without such showings. While the Sixth Circuit paid lip service to *Overton Park,* it simply did not engage in a searching inquiry.

EPA made no adequate showing why its MAXT-24 should be accepted over Shell's monitor data. EPA made absolutely no showing why the shortcut version of its own equation was more accurate than the full expression. EPA made no showing that Shell's adjustment was not sound, and gave absolutely no empirical[2] or theoretical explanation for its charge. EPA finally gave no specific reason why Shell's unique alternative control plan was not acceptable.

Additionally, the court's refusal to remand EPA's rejection of Shell's request for an emission limit on a pounds per hour basis is contrary to a decision of the Court of Appeals for the First Circuit. That court stated that it is arbitrary and capricious for EPA to reject control strategy alternatives shown to be available that are less wasteful or more economical than its own. *South Terminal Corp.* v. *Environmental Protection Agency,* 504 F.2d at 655-656.

Shell established the availability of a less costly alternative: expressing emission limitations in pounds per hour rather than pounds per million Btu heat input. The court failed to review the record sufficiently on this point. The court's implicit rejection of this suggestion constitutes an approval of EPA's refusal to adopt a reasonable, less burdensome means to the same end.

---

[2] The Sixth Circuit recognized that EPA withdrew, during briefing, its previous statement that it had "validated" or empirically justified its adjustment. (Appendix A, p. 12a).

C. This Case Presents Important Policy Questions That Should Be Reviewed By This Court.

This case involves more than one plant and one petitioner. Since the Clean Air Act has an enormous impact and ever increasing impact on the growth of this country, the approval of unreliable modeling techniques will have continuing adverse effects across the nation.

EPA has elected to carry out significant programs through the use of dispersion models. Modeling will govern licensing and development of new and existing sources under EPA's program for prevention of significant deterioration, thereby substantially impacting upon growth in our economy. The same model at issue in this case has also been used by EPA to designate areas of Ohio as nonattainment for SO_2 under § 107 of the Clean Air Act, 42 U.S.C. § 7407.

The growing use of modeling, in connection with this Court's recent action in *Vermont Yankee*, mandates that the comment-rulemaking process in this and other EPA air regulatory programs be carefully protected. The Sixth Circuit opinion represents a significant retreat from the protection guaranteed by the APA and this Court's requirement that the Circuits engage in searching inquiries.

CONCLUSION

The importance of the integrity of the notice and comment rulemaking procedures, combined with the pervasive impact of administrative regulation in general, and environmental regulation in particular, as well as the intensifying effect of the use of environmental modeling upon the citizens of Ohio and this country, provide important reasons that this petition for a writ of *certiorari* be granted. Since EPA's action and the Sixth Circuit's review thereof fail to meet even the minimal requirements of the APA and *Vermont Yankee*, Petitioner suggests that, upon granting this petition, this Court summarily vacate the Sixth Circuit judgment and remand with orders to remand the matter to EPA.

Respectfully submitted,

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APPENDIX A

Opinion of the United States Court of Appeals for the Sixth Circuit in *Cincinnati Gas & Electric Co. v. Environmental Protection Agency*, 578 F.2d 660 (6th Cir. 1978)

APPENDIX A

Nos. 76-2090, 77-1367; 76-2232, 77-1361; 76-2241, 77-1357; 76-2278

UNITED STATES COURT OF APPEALS

FOR THE SIXTH CIRCUIT

CINCINNATI GAS & ELECTRIC CO.; COLUMBUS & SOUTHERN OHIO ELECTRIC CO.; DAYTON POWER & LIGHT CO.; OHIO EDISON CO.; OHIO POWER CO.; SHELL OIL CO.; AUSTIN POWDER CO., E. I. duPONT de NEMOURS & CO.,

Petitioners,

v.

ENVIRONMENTAL PROTECTION AGENCY and DOUGLAS M. COSTLE, ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY,

Respondents.

PETITIONS for review of action of the Administrator of the Environmental Protection Agency.

Decided and Filed June 29, 1978.

Before: PHILLIPS, Chief Judge, EDWARDS and PECK, Circuit Judges.

EDWARDS, Circuit Judge. This opinion deals with certain additional issues presented in 23 industry petitions covering 32 major power and industrial companies in Ohio objecting to the United States EPA's plan for control of SO_2 pollution in Ohio. These additional issues concern only point sources of SO_2 pollution in Ohio's rural areas or areas with complex terrain. This opinion should be read as supplementary to the

opinion of this court dated February 13, 1978, *Cleveland Electric Illuminating Co., et al.* v. *Environmental Protection Agency, et al.*, 572 F.2d 1150 (6th Cir. 1978).

Our focus herein is upon the following petitioners and the designated facilities belonging to them. These petitioners protest certain features of the United States EPA Model (MAXT-24) employed for predicting plant pollution in rural and complex terrain areas:

Nos. 76-2090, 77-1367:

Cincinnati Gas & Electric Co., all facilities (Hamilton & Clermont Counties).

Columbus & Southern Ohio Electric Co., all facilities (Athens, Coshocton, Pickaway Counties).

Dayton Power & Light Co., all facilities not covered by opinion dated February 13, 1978 (Adams County).

Ohio Edison Co. (Jefferson County) Sammis Plant only.

Ohio Power Co., all facilities (Washington and Morgan Counties).

No. 76-2278:

E. I. duPont de Nemours & Co., all facilities (Hamilton County).

Nos. 76-2232, 77-1361:

Shell Oil Co., all facilities (Washington County).

Nos. 76-2241, 77-1357:

Austin Powder Co., all facilities (Vinton County).

The MAXT-24 model (Second Maximum 24-Hour Dispersion Model with Terrain Adjustments) is designed for use in predicting SO_2 pollution resulting from single sources located in rural areas. Unlike the RAM model employed in urban areas, which we dealt with in *Cleveland Electric Illuminating Co.*,

supra, MAXT-24 does not provide estimates of comparative contributions to total SO_2 pollution from a number of point sources. The MAXT-24 model treats each point source as an isolated problem, and only general background SO_2 pollution data are added into the formula.

In other respects the MAXT-24 model strongly resembles the RAM model.[1] Thus, like RAM, MAXT-24 starts with a solid ascertainable data base, namely, the established design capacity of the power or steam generating plants in question related to the sulfur content of the fuel used by such plants. Emissions data are developed from these factors. Subsequently, stack height, wind, weather, and terrain data are added. Like RAM, MAXT-24 employs a Gaussian plume formula and assumes vertical and horizontal dispersion of the pollution plume. It employs the Pasquill-Gifford stability classifications and coefficients.

Like RAM, the MAXT-24 model was designed by United States EPA largely as a result of industry criticism of the use of rollback modeling. As was true in relation to the RAM results, the results of use of MAXT-24 were generally less strict than those contemplated by the 1972 and 1974 Ohio EPA SO_2 regulations.[2]

---

[1] *See Cleveland Electric Illuminating Co., supra*, Section 3, 572 F.2d at 1160-64.

[2] The following summary is drawn from *Cleveland Electric Illuminating Co., supra*, Appendix A, 572 F.2d at 1165-74:

US EPA 1976-77 MAX regs are:	Ohio EPA 1972 regs for:	Ohio EPA 1974 regs for:	
1. less strict than	19	16	of petitioners' facilities[a]
stricter than	1	5	"
ambiguous[b] compared with	3	2	"
2. less strict than	31	27	of Ohio counties modeled entirely with MAX
stricter than	3	6	"
ambiguous[b] compared with	5	6	"

(Continued on next page)

Indeed, the comments this court made in *Cleveland Electric Illuminating Co., supra,* in Section 3 of the opinion are largely applicable to EPA's adoption of MAXT-24 and we cite and rely on said Section 3 in holding that in general (and with one exception noted below) the EPA's adoption and use of the MAXT-24 model is not arbitrary or capricious and, like the use of the RAM model, must be affirmed by this court.

Despite the discussion above, we are not certain that any of the petitions we deal with in this opinion seriously disputes the general validity of the MAXT-24 model. What these petitioners clearly do contend is that the MAXT-24 model results are badly skewed to their great economic disadvantage by 1) the Class A assumption employed to estimate pollution dispersion in the least stable wind condition, and 2) the failure of EPA to employ the half ground displacement theory in estimating pollution impact on hilly terrain.

I THE CLASS A ASSUMPTION ISSUE

The MAXT-24 model makes use of a set of six coefficients for determining plume dispersal. The classes of coefficients employed were based upon six different weather conditions.

US EPA 1976-77 MAX regs are:	Ohio EPA 1972 regs for:	Ohio EPA 1974 regs for:	
3. less strict than	38	32	of Ohio counties in which MAX was employed
stricter than	3	6	"
ambiguous[b] compared with	12	15	"

[a] Including facilities to the regulation of which petitioners do not object.

[b] *I.e.*, stricter for some stacks or facilities and less strict for others; or employing different units of measurement, rendering comparison impossible.

The 1972 Ohio EPA plan was submitted to United States EPA on January 30, 1972, but was "withdrawn" by the Governor of Ohio on August 27, 1972. The 1974 Ohio EPA plan was submitted to United States EPA on September 22, 1974, and was withdrawn on July 16, 1975. *See Cleveland Electric Illuminating Co., supra,* 572 F.2d at 1156.

The term Class A is employed to describe both the least stable weather condition and the set of assumptions which is based on the most direct and quickest impact of the pollution plume upon ground level with the least prior dispersal.

The six Pasquill-Gifford coefficients employed in MAXT-24 are derived from a Nebraska study made in the 1950's and are referred to by United States EPA as "time-tested." What this defense appears to ignore, however, is that petitioners in this instance (contrary to the general attack upon the six coefficients employed in RAM) are not objecting to the use of the coefficients, they are attacking the accuracy of one set of them – the Class A set associated with "gusty winds." Specifically they claim that the Class A assumption is fallacious in that it assumes a longer period of downward draft than occurs in fact and fails to make allowance for the lateral dispersal which would accompany such a vertical wind at the point of impact.

The lead brief for the utilities presents the case thus:

> In all modeling of rural power plants, EPA utilized dispersion coefficients under Class A stability conditions which have no support in data, which have been repudiated by most modelers and which are demonstrated inaccurate by this record. As applied to this rulemaking, this seemingly simple assumption is exceedingly important because, *for almost 1/3 of the power plants in Ohio, it was the determining factor in establishing emission limits.*
>
> *The meaning of "Class A."*
>
> Diffusion models can account for thousands of bits of data. Most important are meteorological data of which stability classes are an aspect.
>
> Specifically, stability classes are categorizations of the atmosphere's ability to disperse plumes. These classes are divided into six categories ranging from extreme dispersion of plumes (Class A) to minimum dispersion (Class F). Under Class A, a plume is assumed to disperse very rapidly to the ground level before there is any

> substantial dilution. This, in turn, leads to predictions of high ground level concentrations. The fundamental issue, therefore, is whether the Class A assumption describes the manner in which plumes disperse at rural power plants and whether the phenomena it depicts really occur.
>
> Brief of Utility Petitioners at 31-32 (emphasis in original).

Petitioners then detail the results of three separate studies which they claim attack and undermine the validity of the Class A coefficients, and generally urge substitution of Class B coefficients. These studies are the privately financed study by Enviroplan, Inc., a similarly produced study by Smith-Singer Meteorologists, and a strongly critical report resulting from the Specialists' Conference of February 22-24, 1977, sponsored by United States EPA itself through the Argonne National Laboratory.

To this argument the EPA's response is as follows:

> EPA properly determined that the "Class A" stability factors should continue to be used until new field data proved them incorrect.
>
> Petitioners argue that EPA should have changed the dispersion coefficients used in the rural MAX (CRSTER) model for analyzing ground level concentrations caused by a source in very unstable weather, known as "Class A" conditions. In the remand comment period, the utility petitioners presented various theories that the model did not accurately reflect the way wind patterns in such weather conditions affect dispersion patterns and that therefore the model might be overestimating ground level concentrations for a 3-hour analysis. Petitioners argue that it was arbitrary or capricious for EPA not to accept theories presented in their comments.
>
> EPA recognized in the STSD [Supplemental Technical Support Document] at 55 that there was a growing con-

> cern among atmospheric modeling scientists about the issue. EPA determined, however, that until further studies could be done to substantiate the theories, there was no experimental or field data to justify changing the dispersion curves or to determine how the dispersion equations should be changed. And since petitioners did not submit any data, no change could be made in the equations used. *Id.*
>
> EPA Brief at 48-49.

We are, of course, aware that decision-making (particularly in this highly technical area) is the primary responsibility of the agency and not the responsibility of this court. *See Vermont Yankee Nuclear Power Corp.* v. *NRDC*, 98 S.Ct. 1197 (1978). As we said in *Cleveland Electric Illuminating Co., supra*:

> Our standard of review of the actions of United States EPA is whether or not the action of the agency is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 305(a), 91 Stat. 775 (to be codified as 42 U.S.C. § 7607(d)(9)(A)). Thus, we are required to affirm if there is a rational basis for the agency action and we are not "empowered to substitute [our] judgment for that of the agency." *Citizens to Preserve Overton Park* v. *Volpe*, 401 U.S. 402, 416 (1971).
>
> 572 F.2d at 1161.

On this present record we conclude that United States EPA's employment of the Class A assumption in determining pollution dispersion under "least stable" wind conditions in rural areas and areas of complex terrain is not a rational decision and is arbitrary and capricious.

As we read EPA's position on this point, it is that no better solution has been proposed. This answer, however, ignores the Enviroplan and Smith-Singer studies. More importantly,

it ignores the conclusions of the experts' conference convened by Argonne National Laboratory at United States EPA's own request.[3] The report of that conference suggested "elimination of the A curve and the use of the B curve for both A and B stability categories." *See* Report of the Specialists' Conference on the EPA Modeling Guideline, Feb. 22-24, 1977, Chicago, Illinois, at § 2.7.5: "Vertical Dispersion Estimates."

By pointing out this proposed solution, we do not mandate its acceptance by United States EPA. Our ultimate action on this score is simply to remand this issue to United States EPA for further study. This might result in the writing of a new record which supplies the now missing support for the use of Class A coefficients for the least stable wind condition in rural counties, or it might result in United States EPA's adoption of use of the Class B coefficients for the two least stable wind conditions, or it might result in a new record which supports a wholly new solution.

II THE TERRAIN ADJUSTMENT PROBLEM

The original MAXT-24 model assumed that the pollution plume moves downwind in a straight line from a point determined by the height of the smoke stack plus plume rise ("effective stack height"). Under that assumption, if effective stack height is 600 feet and there is a hill 800 feet high downwind, a receptor site located 600 feet up that hill will therefore in theory receive the full impact of the pollutants in the center of the plume.

Petitioners' attack upon this set of assumptions is, we believe, best stated by the Shell Oil Co. brief:

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[3] This conference was initiated by United States EPA and one of the participants was the Director of EPA Region V, which Region includes Ohio. The conference occurred during the remand period of this litigation, and three months before the finally amended regulations were promulgated. We consider the Conference Report to be properly a part of the appellate record.

> The reference to "the effect of the terrain on the plume" is an easily understood concept. Since the wind which blows the plume toward a hill (terrain) *cannot blow through* the hill, it must blow up and over the hill. This effect causes all the *layers of air above the wind at ground level*, and hence the plume itself, to be carried up and over the hill rather than hitting directly into its side. A *widely recognized* means of accounting for such a situation, and one which EPA has used, is to incorporate mathematical changes in the model which reduce the receptor height by the one-half difference between stack base and receptor elevation and limit the approach of the center line of the plume to ten meters above the receptor.
>
> Shell and its consultant, Enviroplan, recommended this change to U.S. EPA. Moreover, this change was supported in the modeling literature by two other independent experts – Briggs and Egan. Also, another consultant, Environmental Research & Technology, Inc. ("ERT"), recommended the same adjustment in a report submitted to EPA during the comment period for Columbus & Southern Ohio Electric Co. See "A Technical Review of the U.S. EPA Ohio State Implementation Plan for Sulfur Dioxide," January 1977, prepared for C&SOE. (App. 210-213.) Indeed, this approach is so well recognized that EPA, Region II, approved its use in sustaining a revision of the implementation plan for Puerto Rico. See 40 Fed. Reg. 52410 (1975).
>
> Brief of Shell Oil Co., at 19-20.

As to this argument, the EPA brief contains this comment and admission:

> Contrary to petitioners' claims, EPA utilized available monitoring data wherever possible. As set forth in detail in both the Final and the Supplemental Technical Support Documents, EPA conducted validation studies of the dispersion model used to set emission limitations for

> isolated, rural power plants. *See* STSD at 53-55, and the FTSD at 27-34. The validation studies compared model predictions of SO_2 ground level concentrations to actual air quality monitor data. These comparisons indicated that for sources located on flat terrain, the correlation between monitor data and predictions was quite good with the model tending to underpredict, but that for power plants located on hilly terrain, the comparisons showed consistent overpredictions.
>
> EPA Brief at 45-46 (footnote omitted).

The EPA brief then goes on to assert that certain adjustments have been made in the model "so that it could handle dispersion in hilly terrain more accurately," and then cited the Supplemental Technical Support Document at page 55. The STSD material referred to follows:

> The validation studies which compared model predictions of SO_2 ground level concentrations to actual air quality monitor data indicated that in certain situations the model overpredicted and needed modification. The problem usually occurred when air quality monitors were at elevations higher than the top of the stack. To correct this, terrain data used in the model was limited in such a way that terrain features were always assumed to be no higher than the stack height of the source stack in question. This was deemed to be an appropriate adjustment because the validation study showed a high degree of correlation between model predictions and sample readouts from monitors positioned on terrain lower than stack height in elevation. When this assumption was mathematically incorporated into the model, the validation studies showed that the model accurately predicted the ground level concentrations observed by the monitors.
>
> Petitioners proposed a different method for modifying the model to account for complex terrain situations, but the proposal is not based on any validation studies of the CRSTER model. The Agency has no way of determining

> if the proposal is a better modification to the model than the modification made by the Agency after the validation studies. The Agency, therefore, has determined that the model does not need further modifications because of any information presented by the petitioners.
>
> EPA Brief at 54-55.

While the record does not establish conclusively that this adjustment made by United States EPA in the remand period will prove a satisfactory solution to the problem posed, neither does the record offer evidence to the contrary. We note, of course, that United States EPA had disowned the apparent implication in its brief that it had made validation studies of this latest adjustment for hilly terrain. And, in fact, our holding on this issue should not be read as this court's rejection of petitioners' half ground displacement theory in favor of the United States EPA adjustment outlined above. There may well be occasion for the agency to continue to review this issue. All we hold is that on the present record, we cannot find that United States EPA's present terrain adjustment in MAXT-24 is "arbitrary or capricious."

For the reasons indicated above, the petitions of Dayton Power & Light Co. (Adams County facilities only), Ohio Power Co. (all facilities), Columbus & Southern Ohio Electric Co. (Coshocton County facility only), and Austin Powder Co. (all facilities) are remanded to the United States EPA for reconsideration of the employment of Class A coefficients in least stable wind conditions in rural counties.

All petitions referred to at the beginning of this opinion are denied to the extent that they attack the MAXT-24 model as to the terrain adjustment feature.

III OTHER ISSUES

We also hold that there is no merit to objections based on failure to calibrate the MAXT-24 model (or failure to reject its results because of claims of overprediction as demonstrated by

some monitor readings). *See Cleveland Electric Illuminating Co., supra,* 572 F.2d at 1163-64, numbered paragraph 7.

Shell contends that its emission limitation should be expressed in terms of pounds SO_2 per hour rather than pounds SO_2 per million British Thermal Units. The Shell proposal would require the EPA either to assume that stack gas temperature and exit velocity (the important factors bearing on plume rise and thus ultimately on ground level SO_2 concentration) are relatively constant, or alternatively to monitor stack gas temperature and exit velocity. Clearly, EPA considers policing such a system to be an impossible task. EPA's formula, by contrast, requires only the use of fixed, easily ascertainable data – the plant's design-rated capacity. We regard EPA's choice of formula, which minimizes administrative costs while obeying the Clean Air Act's command to "insure attainment and maintenance" of national ambient air standards, 42 U.S.C. § 1857c-5(a)(2)(B) (1970),[4] to be within the range of the agency's discretion.

We have considered the other issues raised by Shell and find them to be without merit.

Disputes between petitioners and EPA concerning appropriate SO_2 background levels, emission data, or other fact issues will not be decided by this court until completion of the administrative review of such issues which was suggested by this court and agreed upon by the parties.

Based upon what has been said by this court in *Cleveland Electric Illuminating Co.* v. *EPA, supra,* and in this opinion, and finding no other material issues, we dismiss the following petitions *in toto*: Cincinnati Gas & Electric Co., Shell Oil Co.

Final dispositions in the petitions of Columbus & Southern Ohio Electric Co., Ohio Edison Co., and E. I. du Pont de Nemours & Co. will be entered on resolution of the remaining issues therein.

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[4] Newly recodified as 42 U.S.C.A. § 7410(a)(2)(B) (1977 Pamphlet).

APPENDIX B

Order of the United States Court of Appeals for the Sixth Circuit in *Cincinnati Gas & Electric Co. v. Environmental Protection Agency*

APPENDIX B

Nos. 76-2090, 77-1367

UNITED STATES COURT OF APPEALS

FOR THE SIXTH CIRCUIT

THE CINCINNATI GAS AND ELECTRIC COMPANY, et al.,
Petitioners,

v.

ENVIRONMENTAL PROTECTION AGENCY and DOUGLAS M. COSTLE, ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY,
Respondents.

ORDER

Decided and Filed June 29, 1978.

Before: PHILLIPS, Chief Judge, EDWARDS and PECK, Circuit Judges.

On receipt and consideration of a motion for clarification of this court's opinion, dated February 13, 1978; and

Believing that said opinion is self-explanatory, but understanding petitioners' desire for certainty, we reprint below the specific dispositive paragraphs of *Cleveland Electric Illuminating Co.* v. *EPA*, — F.2d — (6th Cir. 1978) (Nos. 76-2090 et al.), numbered in sequence of their appearance in the opinion.

1) The cases dealt with in this opinion[1] present the major general issues. Other individual cases, in addition to presenting one or more of the general issues, also present specific issues of fact. These are reserved pending a review of and reports on the factual disputes between the United States EPA and the individual petitioners.

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[1] This decision dismisses the objections to the regulations *that apply to the following facilities:*

(a) Cleveland Electric Illuminating Co. — all facilities.
(b) Dayton Power & Light Co. — Montgomery County facilities only.
(c) Ohio Edison Co. — Lorain County facilities only.
(d) Toledo Edison Co. — all facilities.
(e) The Timken Co. — all steam generating units.
(f) White-Westinghouse Corp. — all facilities. (Although there was some confusion on this point in the briefs, the record makes clear that White-Westinghouse's Franklin County facility is subject to the RAM model. *See* EPA Final Technical Support Document at IV-57.
(g) Standard Oil Co. of Ohio — Lucas County steam generating units.
(h) Interlake, Inc. — all steam generating units.
(i) Coulton Chemical Corp. — all steam generating units.

Id., slip opinion at 2 (emphasis added).

* * *

2) No other material issues are presented.

3) One petition pending before this court from the Northern Ohio Lung Association attacks United States EPA's failure to promulgate a separate implementation plan for the "secondary standards" for the ambient air. This petition will be the subject of separate consideration.

4) *Similarly, this opinion does not govern any petitions where the RAM model was not used. We do not decide any specific fact disputes raised by any petitioner as to plants other than those treated in this opinion.*[6] Decision of these cases will follow.

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[6] *See note 1, supra.*

5) For the reasons stated above, the decision of the Administrator in imposing the SO_2 control plan is affirmed subject to the reservations indicated above.

Id., slip opinion at 30-31 (emphasis added).

The petitioners' Motion to Clarify, filed February 27, 1978, states accurately that this court's opinion disposed of five issues, which it stated as follows:

(1) The appropriateness of the use of RAM (raised in the joint RAM brief and incorporated by reference in the utilities' brief),
(2) The claims for needed procedural safeguards of cross examination on remand (raised in the utility brief),
(3) The economic and technical arguments (raised in the utility brief), and
(4) The urban/rural designation issue (raised in the utility brief).
(5) The urban dispersion coefficients used in RAM (raised in the joint RAM brief).

Subsequently, said petition lists the following five issues as unresolved:

(1) Failure of U.S. EPA to utilize monitor data in regulation development (utility brief),
(2) Improper use of Class A Assumption in the rural model (utility brief),
(3) Improper terrain adjustment features to the rural model (utility brief),
(4) Failure of EPA to correct background and data errors (utility brief), and
(5) Invalidity of the plan for vagueness, and failure to consider sulfur-in-coal variability (utility reply).

Issues 2 and 3 are disposed of by this court's opinion issued this date in *Cincinnati Gas & Electric Co.* v. *EPA*, —— F.2d —— (6th Cir. 1978).

Issues numbered 1 and 5 above we deem disposed of by affirmance of EPA's employment of the RAM and MAXT-24 models and the discussion in *Cleveland Electric Illuminating Co.* v. *EPA*, and *Cincinnati Gas & Electric Co.* v. *EPA*.

Issue number 4 we consider to be fact questions which are subject to agreed on administrative review. *See Cincinnati Gas & Electric Co.* v. *EPA*.

For the information of these petitioners, and others, we call attention to the fact that by order, dated February 9, 1978, the petition of the Northern Ohio Lung Association (No. 76-2282) was remanded to the United States EPA for further consideration. Additionally, as of today, an order is being entered denying the petition of the Ohio Mining & Reclamation Association and the Ohio Coal Operators' Association, Inc. (No. 77-3290) because it seeks relief which can only be had from the Congress of the United States.

As of this present date, this court considers that the United States EPA control plan for all Mahoning and Summit County facilities belonging to certain petitioners in these cases is under voluntary re-evaluation by United States EPA due to factual disputes. As these and other fact disputes are resolved, stipulations for dismissal should be submitted promptly to this court. When factual disputes cannot be resolved, the parties should make every effort promptly to stipulate the disputed issue, or, failing that, to stipulate the opposing positions of the parties on the issue or issues.

Entered by order of the Court

/s/ JOHN P. HEHMAN
Clerk

APPENDIX C

Decision of the United States Court of Appeals for the Sixth Circuit in *Cleveland Electric Illuminating Co.* v. *Environmental Protection Agency*, 572 F.2d 1150 (6th Cir. 1978), a related decision by the Sixth Circuit

APPENDIX C.

Nos. 76-2090, 77-1367; 76-2225, 77-1366;
76-2240, 77-1355; 76-2242, 77-1359;
76-2244, 77-1363; 76-2276, 77-1368.

UNITED STATES COURT OF APPEALS

FOR THE SIXTH CIRCUIT

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, THE DAYTON POWER & LIGHT CO., THE OHIO EDISON CO., THE TOLEDO EDISON CO., THE TIMKEN CO., WHITE-WESTINGHOUSE CORP., THE STANDARD OIL CO. OF OHIO, INTERLAKE, INC., THE COULTON CHEMICAL CORP.,

Petitioners,

v.

ENVIRONMENTAL PROTECTION AGENCY, and DOUGLAS M. COSTLE, ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY,

Respondents.

PETITIONS for Review of Action of the Administrator of the Environmental Protection Agency.

Decided and Filed February 13, 1978.

Before: PHILLIPS, Chief Judge, EDWARDS and PECK, Circuit Judges.

EDWARDS, Circuit Judge. This court now has before it 23 petitions involving 32 companies filed against the United States Environmental Protection Agency which levy a variety of complaints against the federal agency's imposition of a sulfur

dioxide (SO_2) pollution control plan for industrial discharges into Ohio's ambient air. The issues, which have been extensively briefed and argued, divide into general legal and procedural complaints which might be applicable to any one of the petitioners and a wider variety of specific complaints about the application of the EPA controls to particular power-generating or industrial plants. The cases dealt with in this opinion[1] present the major general issues. Other individual cases, in addition to presenting one or more of the general issues, also present specific issues of fact. These are reserved pending a review of and reports on the factual disputes between the United States EPA and the individual petitioners.

The major issues dealt with in this opinion are: 1) intervenor, the State of Ohio, claims that this court should disapprove the federal plan as irrational and arbitrary and rely upon Ohio to come forward with a more rational plan sometime in the future; 2) petitioners claim that the EPA SO_2 plan should be remanded for hearings because the informal rulemaking hearings employed by EPA under 5 U.S.C. § 553 (1970 & Supp. V 1975) were inadequate; and 3) petitoners claim that the major model employed by the United States Environmental Protection Agency in establishing spe-

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[1] This decision dismisses the objections to the regulations that apply to the following facilities:

(a) Cleveland Electric Illuminating Co. — all facilities.
(b) Dayton Power & Light Co. — Montgomery County facilities only.
(c) Ohio Edison Co. — Lorain County facilities only.
(d) Toledo Edison Co. — all facilities.
(e) The Timken Co. — all steam generating units.
(f) White-Westinghouse Corp. — all facilities. (Although there was some confusion on this point in the briefs, the record makes clear that White-Westinghouse's Franklin County facility is subject to the RAM model. *See* EPA Final Technical Support Document at IV-57.
(g) Standard Oil Co. of Ohio — Lucas County steam generating units.
(h) Interlake, Inc. — all steam generating units.
(i) Coulton Chemical Corp. — all steam generating units.

cific emission limitations for particular plans is invalid both intrinsically and as applied. This model is termed the "Real-Time Air-Quality-Simulator Model" (hereinafter RAM).

THE HISTORY OF THIS LITIGATION

The United States Congress has been wrestling with the problem of pollution of the ambient air since 1955. *See* Act of July 14, 1955, Pub. L. No. 84-159, 69 Stat. 622. The original act has now been amended many times. It now is cited as the Clean Air Act and has been codified in 42 U.S.C. §§ 1857-1857(*1*) (1970 & Supp. V 1975).[2]

The prior history of litigation concerning sulfur dioxide emission controls in this court is set forth in *Buckeye Power, Inc.* v. *EPA*, 481 F.2d 162 (6th Cir. 1973) (*Buckeye Power #1*) and *Buckeye Power, Inc.* v. *EPA*, 525 F.2d 80 (6th Cir. 1975) (*Buckeye Power #2*).

National air quality standards for sulfur dioxide, one of the most important pollutants of the ambient air, were set by EPA in 1973 as follows:

> **§ 50.4 National primary ambient air-quality standards for sulfur oxides (sulfur dioxide).**
>
> The national primary ambient air quality standards for sulfur oxides measured as sulfur dioxide by the reference method described in Appendix A to this part, or by an equivalent method, are:

---

[2] The Clean Air Act was originally enacted in 1963, Pub. L. No. 88-206, 77 Stat. 392. It was amended in relatively minor ways three times during the following six years. Pub. L. No. 89-272, 79 Stat. 992 (1965); Pub. L. No. 89-675, 80 Stat. 954 (1966); Pub. L. No. 90-148, 81 Stat. 485 (1967).

The Act's present form, however, is derived from amendments adopted in 1970 and subsequently. Clean Air Act Amendments of 1970, Pub. L. No. 91-604, 84 Stat. 1676, *as amended*, Pub. L. No. 92-157, 85 Stat. 464 (1971); Pub. L. No. 93-319, 88 Stat. 246 (1974); Pub. L. No. 95-95, 91 Stat. 685 (1977).

The Act is being recodified as 42 U.S.C. §§ 7401-7626.

(a) 80 micrograms per cubic meter (0.03 p.p.m.)—annual arithmetic mean.

(b) 365 micrograms per cubic meter (0.14 p.p.m.)—Maximum 24-hour concentration not to be exceeded more than once per year.

§ 50.5 National secondary ambient air quality standards for sulfur oxides (sulfur dioxide).

The national secondary ambient air quality standard for sulfur oxide measured as sulfur dioxide by the reference method described in Appendix A to this part, or by any equivalent method is 1,300 micrograms per cubic meter (0.5 p.p.m.) maximum 3-hour concentration not to be exceeded more than once per year.[3]

Ambient Air Standards (Primary & Secondary), 40 C.F.R. §§ 50.4, 50.5 (1976).

The federal Clean Air Act program which produced these standards is based primarily upon the adverse effect which air pollution has upon human life and health.

> Acute episodes of high pollution have clearly resulted in mortality and morbidity. Often the effects of high pollutant concentrations in these episodes have been combined with other environmental features such as low temperatures or epidemic diseases (influenza) which may in themselves have serious or fatal consequences. This has sometimes made it difficult to determine to what extent pollution and temperature extremes are responsible for the effects. Nevertheless, there is now no longer any doubt that high levels of pollution sustained for periods of days can kill. Those aged 45 and over with chronic diseases, particularly of the lungs or heart, seem

[3] The EPA plan for Ohio presently under consideration contains no separate implementation plan for secondary air quality standards. This issue is raised in the petition of the Northern Ohio Lung Association and will be considered and decided subsequently.

> to be predominantly affected. In addition to these acute episodes, pollutants can attain daily levels which have been shown to have serious consequences to city dwellers.
>
> • • •
>
> There is a large and increasing body of evidence that significant health effects are produced by long-term exposures to air pollutants. Acute respiratory infections in children, chronic respiratory diseases in adults, and decreased levels of ventilatory lung function in both children and adults have been found to be related to concentrations of SO_2 and particulates, after apparently sufficient allowance has been made for such confounding variable as smoking and socioeconomic circumstances.
>
> Rall, *Review of the Health Effects of Sulfur Oxides,* 8 ENV'TAL HEALTH PERSPECTIVES 97, 99 (1974).

It appears that present national air quality standards have been set with little or no margin of safety. Adverse health effects are set forth in the two following charts; and the minimal or nonexistent margins of safety are vividly portrayed below:

TABLE 1.—EFFECTS THRESHOLD, BEST CHOICE SIGNIFICANT RISK LEVELS AND SAFETY MARGINS CONTAINED IN PRIMARY AMBIENT AIR QUALITY STANDARDS

Pollutant	Lowest best judgment estimate for effects threshold and best choice for significant risk levels		Adverse health effect	U.S. primary air quality standard	Margin of safety* (percent)
	Concentration	Averaging time			
Sulfur dioxide	300 to 400 ug/m³	24 hour	Mortality increase	365 ug/m³	None
	91 ug/m³	Annual	Increased frequency of acute respiratory disease	80 ug/m³	14
Total suspended particulates	250 to 300 ug/m³	24 hour	Mortality increase	260 ug/m³	None
	70 to 250 ug/m³	do	Aggravation of respiratory disease	260 ug/m³	None
	100 ug/m³	Annual	Increased frequency of chronic bronchitis	75 ug/m³	33
Suspended sulfates	10 ug/m³	24 hour	Increased infections in asthmatics	None	None
	15 ug/m³	Annual	Increased lower respiratory infections in children	None	None
Nitrogen dioxide	140 ug/m³	do	Increased severity of acute respiratory illness in children	100 ug/m³	40
Carbon monoxide	23 ug/m³	8 hour	Diminished exercise tolerance in heart patients	10 ug/m³	**130
	73 ug/m³	1 hour	Diminished exercise tolerance in heart patients	40 ug/m³	**82
Photochemical oxidants	200 ug/m³	do	Increased susceptibility to infection	160 ug/m³	25

* Safety margin equals effects threshold minus standard divided by standard X 100.
** Safety margins based upon carboxyhemoglobin levels would be 100 percent for the 8 hour standard and 67 percent for the 1 hour standard.

TABLE 2.—THRESHOLD AND ILLUSTRATIVE HEALTH RISKS FOR SELECTED AMBIANT LEVELS OF SUSPENDED SULFATES

Adverse health effect	Threshold concentration and exposure duration	Illustrative health risk		
		Definition	Level	Sulfur dioxide equivalent
Increase in daily mortality	25 ug/m³ for 24 hr or longer	2½ percent increase in daily mortality	38 ug/m³ for 24 hr	600 ug/m³ for 24 hr.
Aggravation of heart and lung disease in the elderly.	9 ug/m³ for 24 hr or longer	50 per cent increase in symptom aggravation.	48 ug/m³ for 24 hr	750 ug/m³ for 24 hr.
Aggravation of asthma	6 to 10 ug/m³ for 24 hr	75 percent increase in frequency of asthma attacks.	30 ug/m³ for 24 hr	450 ug/m³ for 24 hr.
Excess acute lower respiratory disease in children.	13 ug/m³ for several yr	50 percent increase in frequency	20 ug/m³ annual average	100 to 250 ug/m³ annual average.
Excess risk for chronic bronchitis	10 to 15 ug/m³ for up to 10 yr	50 percent increase in risk	15 to 20 ug/m³ annual average	100 to 250 ug/m³ annual average.

120 CONG. REC. 18973 (1974) (report of Drs. Finklea, Hammer & Cole).

The major source of sulfur dioxide pollution of the ambient air are coal-fired plants – exemplified by power plants operated by some of the petitioners in this case.

Two other facts should be added from the extensive technical record in this case before we turn to the specific legal issues. The first is that sulfur dioxide emitted from plant stacks reacts with other elements in the atmosphere to form sulfuric acid mist and various suspended sulfates which are in fact the irritants which adversely affect human health. T. LEWIS, M. AMDUR, M. FRITZHAND & K. CAMPBELL, TOXICOLOGY OF ATMOSPHERIC SULFUR DIOXIDE DECAY PRODUCTS 17 (1972).

The second important fact is that these derivatives from sulfur dioxide tend to be airborne for days. They affect areas at great distances downwind, even when in the original sulfur dioxide form they were emitted from a high power plant stack. Rall, *Review of the Health Effects of Sulfur Oxides*, 8 ENV'TAL HEALTH PERSPECTIVES 97, 106 (1974).

The cases considered in this opinion represent the fourth time this sulfur dioxide control problem has been before this court. In the instant cases a hearing was held November 14, 1976, at which numerous arguments were advanced concerning petitioners' claims that they had been deprived of an adequate opportunity to comment upon the EPA sulfur dioxide standards. In particular they complained about not having an opportunity in advance to comment upon the EPA's use of the RAM model. The hearing resulted in the entry of an order by this court remanding all of these petitions to the EPA for reopening of the record to allow presentation of additional objections, corrections, and comment. The order provided in part as follows:

> On receipt and consideration of the thirty-six (36) above-styled petitions for review attacking the emission standards for the State of Ohio applicable to sulphur dioxide (SO_2) promulgated by respondents Environmental

Protection Agency (EPA) and Train on August 27, 1976; and

On receipt and consideration of respondent's motion to consolidate such petitions for hearing – and certain petitioners' objections thereto – and said motion to consolidate having been granted by this Court; and

On receipt and consideration of certain petitioners' motions for stay of the respondent's orders pending this Court's review; and

On receipt and consideration of respondent EPA's motion to hold a prehearing conference and certain concurrences therein, and such prehearing conference having been held after due notice to all parties; and

On inspection and consideration of petitioners' motions, briefs, and oral arguments and noting that many of them deal with claims of due process violations in respondent EPA's closing of the administrative record without further opportunity on the part of petitioners to present comment or evidence deemed by them to be essential to a just result,

Now therefore this Court, in the interest of as expeditious judicial disposition of this complex litigation as possible, hereby, sua sponte, extends to all petitioners in this consolidated proceeding a stay of enforcement of said orders of respondents EPA and Train, subject to the following conditions:

No petitioners shall be permitted to submit any new emission, process or air quality data. Comments relating to clerical or computational errors shall be permitted.

Whenever possible, petitioners shall make consolidated submissions to the Agency.

All submissions shall be made by petitioners no later than January 14, 1977, and the Agency shall prepare an appropriate response and shall amend the subject regu-

lations if and as necessary within an additional 60 days therefrom.

The stay granted herein will terminate twenty-one (21) days after respondent EPA files with this Court the response called for above, unless otherwise directed by this Court.

Pursuant to the order of this court, the effective date of the SO_2 regulations was June 17, 1977. EPA has advised this court, however, that it has not begun enforcement proceedings in relation to any sources involved directly in this litigation.

Although this court's order allowed the petitioners 60 days for presentation of additional evidence and comment, EPA *sua sponte* extended the remand period briefly. Promptly upon notice that EPA had filed its response to petitioners' objections and comments resulting from the remand, this court scheduled two full days of hearings on these cases for purposes of as quick an adjudication at the appellate level as might be achieved.

DISPOSITION OF THE GENERAL ISSUES

1. The State of Ohio's Petition

On July 13, 1977, the State of Ohio belatedly moved for leave to intervene in this proceeding. Its motion attacked the EPA sulfur dioxide emission control plan as having an adverse impact on the Ohio coal industry, and the Ohio economy as a whole. The motion also asserted that the State was developing a sulfur dioxide plan which would eliminate excessive abatement requirements which Ohio perceived to exist in the federal regulations. This court granted the motion for leave to intervene and has considered the brief and the reply brief filed by Ohio. Under this first disposition heading we consider only Ohio's suggestion that this court reject the United States Environmental Protection Agency's

sulfur dioxide control plan and rely upon Ohio's implied promise to promulgate a state sulfur dioxide plan sometime in the future.

We reject this suggestion on the basis of a record of delay and default which has left Ohio in the position of being the only major industrialized state lacking an enforceable plan for control of sulfur dioxide.

It was clearly the intention of Congress to have a plan for control of sulfur dioxide emissions in place in all states in need of such control by the year 1972. Clean Air Act §§ 109 (a), 110(a), 42 U.S.C. §§ 1857c-4(a), 5(a) (1970 & Supp. V 1975). It was equally clearly the intention of Congress that the preferred mechanism for establishment of such a plan was through the establishment and operation of a state environmental protection agency. § 107(a), 42 U.S.C. § 1857c-2(a) (1970). On January 30, 1972, Ohio did submit a plan for approval by the Administrator of the United States Environmental Protection Agency under Section 110 of the Act and the Administrator approved that plan. That approval, however, was challenged in this court on the ground that such approval required a federal rulemaking hearing prior to the required approval by the federal Administrator. Among other claims laid before this court in that petition was an attack on the sulfur dioxide control scheme contained in the Ohio plan, claiming "there is presently no technologically feasible method of removing from their coal burning emissions an amount of sulfur sufficient to meet the standards." *See Buckeye Power, Inc.* v. *EPA*, 481 F.2d 162, 167 (6th Cir. 1973). It was also petitioners' contention in that same litigation that they had not been allowed to document these claims of impossibility before the federal Administrator prior to his approval of the state plans. On analysis of these arguments, this court vacated the approval of the Ohio state plan and remanded the case to the Agency for compliance with Section 4 of the Administrative Procedure Act, 5 U.S.C.

§ 553 (1970 & Supp. V 1975), which requires adherence to informal rulemaking procedures.

Before the hearing could be held which was called for in *Buckeye Power #1, supra*, the governor of Ohio, on August 27, 1972, "withdrew" the sulfur dioxide portion of the state EPA plan. At that point Ohio began work on a new plan for sulfur dioxide control. On May 30, 1974, the second plan was submitted to the United States EPA for approval. It had, however, been challenged at the state level and was partially vacated on procedural grounds by the Ohio Environmental Board of Review on September 12, 1974, and for a second time on July 16, 1975, the governor of Ohio withdrew the Ohio plan to control sulfur dioxide.

The Clean Air Act, as amended, provides in part:

> (c)(1) The Administrator shall, after consideration of any State hearing record, promptly prepare and publish proposed regulations setting forth an implementation plan, or portion thereof, for a State if—
>
> > (A) the State fails to submit an implementation plan for any national ambient air quality primary or secondary standard within the time prescribed . . . .
>
> Clean Air Act § 110(c)(1), 42 U.S.C. § 1857c-5(c)(1) (Supp. V 1975).

Clearly, the State of Ohio has failed to submit an implementation plan for sulfur dioxide for which a national ambient air quality primary standard has been prescribed. Equally clearly, five years have now elapsed beyond the date when such an implementation plan was called for under the Clean Air Act. Under these circumstances, we find no warrant, consistent with the purposes of the federal legislation, for giving heed to Ohio's petition for further delay.

Intervenor Ohio's other objections to the United States EPA's

sulfur dioxide control plan will be considered under Part 3 of the disposition section of this opinion.

2. The Additional Remand and Cross-Examination Issue

The leading brief in this series of cases filed on behalf of the utilities opens its argument for remand as follows:

> The Most Appropriate Manner To Resolve The Multitude Of Issues Raised Is A Remand To The EPA With Directions To Hold Further Hearings To Reconsider The Significant Issues; Given The Nature Of This Rulemaking, Any Remand Should Incorporate Procedural Safeguards Such As Right To Cross-Examine Or Question EPA.

Admittedly, there is no statutory requirement that EPA afford the regulated the opportunity to confront its decision makers through adjudicative-type hearings. See *Buckeye Power, Inc., supra.* [*Buckeye Power, Inc.* v. *EPA*, 481 F.2d 162 (1973)].

However, this EPA promulgation contains so many specific findings and actions that the normal comment period has not been sufficient to expose and evaluate all of the important facts before this Court. EPA has promulgated emission limits specific to a plant, has applied specific diffusion models specific to a plant, and has reached specific conclusions regarding economics specific to a plant. Each decision is based on fact upon fact and conclusion upon conclusion. In essence and in operation, this plan and its formulation smack of the issuance of an order as defined by EPA.

In *Buckeye Power #1*, a panel of this court, prior to the first remand of the sulfur dioxide problem for federal hearings, considered the question as to whether or not adjudicatory hearings (including cross-examination) were re-

quired. The opinion rejected this suggestion with the following reasoning:

> However, as heretofore noted, the petitioners herein do not simply request a remand with instructions to adhere to the informal rulemaking dictates of Section 553 of the APA; they also request a full-scale evidentiary hearing before the Administrator to adjudicate their complex and intricate claims of high cost-benefit, technological infeasibility and resource unavailability. We cannot accept this position.
>
> Administrative rulemaking which is to be preceded by extensive hearings where "[a] party is entitled to present his case or defense by oral or documentary evidence, to submit rebuttal evidence, and to conduct such cross-examination as may be required for a full and true disclosure of the facts . . ." (5 U.S.C. § 556(d) (1967)) is required only when the last sentence of Section 553(c) of the APA applies. This section provides:
>
> > "When rules are required by statute to be made *on the record after opportunity for an agency hearing*, sections 556 and 557 of this title apply instead of this subsection." (Emphasis added). (5 U.S.C. § 553(c) (1967)).
>
> (Sections 556 and 557 of the APA outline the requirements for extensive, adjudicatory-type hearings.)
>
> Thus, when a statutory provision directing certain agency action states that such action shall be "made on the record after opportunity for an agency hearing," then, and only then, is the agency required to have full-scale adjudicatory hearings prior to rulemaking. • • •
>
> There is no provision that, in approving or disapproving proposed state pollution-abatement plans pursuant to 42 U.S.C. § 1857c-5(a)(2) (1973 Supp.), the Administrator shall make a determination "on the record after an opportunity for an agency hearing." Further-

> more, when Congress intended that actions of the Administrator of the EPA be preceded by adjudicatory-type hearings it either specifically outlined the type of hearings, (42 U.S.C. § 1857f-5a(c)(1) (1973 Supp.)), or invoked the determination "on the record" provision of 5 U.S.C. § 553(c) (1967). See 42 U.S.C. § 1857c-5(f)(2) (1973 Supp.); 42 U.S.C. § 1857f-5(b)(2)(B) (1973 Supp.). On these grounds alone we would reject the petitioners' argument that the Administrator is required to have full-scale adjudicatory-type hearings prior to acceptance of the state plans.
>
> *Buckeye Power, Inc.* v. *EPA*, 481 F.2d 162, 172-73 (6th Cir. 1973). (Footnote omitted.)

More importantly, we note the following discussion of the issue now before us in the unanimous opinion in *United States* v. *Allegheny-Ludlum Steel Corp.*, 406 U.S. 742 (1972), wherein the Supreme Court of the United States said:

> This Court has held that the Administrative Procedure Act applies to proceedings before the Interstate Commerce Commission. *Minneapolis & St. Louis R. Co.* v. *United States*, 361 U. S. 173, 192 (1959). Appellees claim that the Commission's procedure here departed from the provisions of 5 U. S. C. §§ 556 and 557 of the Act. Those sections, however, govern a rulemaking proceeding only when 5 U. S. C. § 553 so requires. The latter section, dealing generally with rulemaking, makes applicable the provisions of §§ 556 and 557 only "[w]hen rules are required by statute to be made on the record after opportunity for an agency hearing . . . ." The Esch Act, authorizing the Commisison "after hearing, on a complaint or upon its own initiative without complaint, [to] establish reasonable rules, regulations, and practices with respect to car service . . . ," 49 U. S. C. § 1 (14)(a), does not require that such rules "be made on the record." 5 U. S. C. § 553. That distinction is determinative for this case. "A good deal of significance lies in the fact that some statutes do expressly require determinations on the

record." 2 K. Davis, Administrative Law Treatise § 13.08, p. 225 (1958). Sections 556 and 557 need be applied "only where the agency statute, in addition to providing a hearing, prescribes explicitly that it be 'on the record.'" *Siegel* v. *Atomic Energy Comm'n*, 130 U. S. App. D. C. 307, 314, 400 F. 2d 778, 785 (1968); *Joseph E. Seagram & Sons, Inc.* v. *Dillon*, 120 U. S. App. D. C. 112, 115 n. 9, 344 F. 2d 497, 500 n. 9 (1965). Cf. *First National Bank* v. *First Federal Savings & Loan Assn.*, 96 U. S. App. D. C. 194, 225 F. 2d 33 (1955). We do not suggest that only the precise words "on the record" in the applicable statute will suffice to make §§ 556 and 557 applicable to rulemaking proceedings, but we do hold that the language of the Esch Car Service Act is insufficient to invoke these sections.

Because the proceedings under review were an exercise of legislative rulemaking power rather than adjudicatory hearings as in *Wong Yang Sung* v. *McGrath*, 339 U. S. 33 (1950), and *Ohio Bell Telephone Co.* v. *Public Utilities Comm'n*, 301 U. S. 292 (1937), and because 49 U. S. C. § 1 (14)(a) does not require a determination "on the record," the provisions of 5 U. S. C. §§ 556 and 557 were inapplicable.

This proceeding, therefore, was governed by the provisions of 5 U. S. C. § 553 of the Administrative Procedure Act, requiring basically that notice of proposed rulemaking shall be published in the Federal Register, that after notice the agency give interested persons an opportunity to participate in the rulemaking through appriate submissions, and that after consideration of the record so made the agency shall incorporate in the rules adopted a concise general statement of their basis and purpose. The "Findings" and "Conclusions" embodied in the Commission's report fully comply with these requirements, and nothing more was required by the Administrative Procedure Act.

United States v. *Allegheny-Ludlum Steel Corp.*, *supra* at 756-58. (Footnote omitted.)

Further, in *United States* v. *Florida East Coast R. Co.*, 410 U.S. 224, 238 (1973), the Supreme Court reiterated and reinforced its decision in *United States* v. *Allegheny-Ludlum Steel Corp., supra*. In the *Florida Coast R. Co.* case the Court held:

> Section 553 excepts from its requirements rulemaking devoted to "interpretative rules, general statements of policy, or rules of agency organization, procedure, or practice," and rulemaking "when the agency for good cause finds . . . that notice and public procedure thereon are impracticable, unnecessary, or contrary to the public interest." This exception does not apply, however, "when notice or hearing is required by statute"; in those cases, even though interpretative rulemaking be involved, the requirements of § 553 apply. But since these requirements themselves do not mandate any oral presentation, see *Allegheny-Ludlum, supra*, it cannot be doubted that a statute that requires a "hearing" prior to rulemaking may in some circumstances be satisfied by procedures that meet only the standards of § 553. The Court's opinion in *FPC* v. *Texaco, Inc.*, 377 U. S. 33 (1964), supports such a broad definition of the term "hearing."
>
> Similarly, even where the statute requires that the rulemaking procedure take place "on the record after opportunity for an agency hearing," thus triggering the applicability of § 556, subsection (d) provides that the agency may proceed by the submission of all or part of the evidence in written form if a party will not be "prejudiced thereby." Again, the Act makes it plain that a specific statutory mandate that the proceedings take place on the record after hearing may be satisfied in some circumstances by evidentiary submission in written form only.
>
> We think this treatment of the term "hearing" in the Administrative Procedure Act affords a sufficient basis for concluding that the requirement of a "hearing" contained in § 1 (14)(a), in a situation where the Commis-

> sion was acting under the 1966 statutory rulemaking authority that Congress had conferred upon it, did not by its own force require the Commission either to hear oral testimony, to permit cross-examination of Commission witnesses, or to hear oral argument.
>
> *United States* v. *Florida East Coast R. Co., supra* at 240-41.

Taking those precedents into account, it seems clear to us that the legislative-type hearings conducted by the United States EPA concerning the Ohio SO_2 control plan were consistent with the provisions of the Clean Air Act and the Administrative Procedure Act, and we further conclude that the hearings are not inconsistent with the due process clause of the Fourteenth Amendment. As pointed out in the quotation from *Buckeye Power #1, supra,* Congress did not insert into the Clean Air Act the language requiring the Administrator to make determinations "on the record after an opportunity for an agency hearing" which the Supreme Court has held to trigger the requirement of an adjudicative hearing. And if there was a legitimate due process complaint arising from the fact that petitioners had not had a chance to comment upon the RAM model as employed by United States EPA in its Ohio SO_2 control plan, we believe it was surely cured by this court's remand for reopening of the administrative record and United States EPA's reconsideration thereafter.

We note, as petitioners encourage us to, that some cases in other circuits hold that it is the importance and complexity of the issues decided by the administrative agency which should determine the kind of hearing procedures required rather than any formal classification of the process as either rulemaking or adjudicatory. *See Appalachian Power Co.* v. *EPA,* 477 F.2d 495, 500-01 (4th Cir. 1973); *Walter Holm & Co.* v. *Hardon,* 449 F.2d 1009, 1015 (D.C. Cir. 1971). Typically, however, it is important and complex problems which Congress assigns to administrative agencies. Thus far

neither Congress nor the Supreme Court has elected to adopt such a flexible standard or to assign exclusive responsibility for the choice of agency hearing procedures to the federal courts.

Several petitioners also argue that this Circuit should follow the example of the Ninth Circuit in *Bunker Hill Co.* v. *EPA*, — F.2d — (9th Cir. 1977) (decided July 5, 1977), to the extent of remanding the proposed sulfur dioxide control standards to allow cross-examination of United States EPA's experts and additional comment thereafter.

In contrast to our remand order of November 12, 1976, the Ninth Circuit did provide for cross-examination pertaining to what it termed a highly complex and technical issue concerning the technological feasibility of the use of sulfur burners to effect control of Bunker Hill's lead smelter emissions. While we believe that cross-examination of an administrative agency's experts is not a required or normal part of informal rulemaking under Section 553, we do not exclude the possibility that a case may be presented to this court wherein remand for cross-examination about disputed facts will prove both logical and necessary.

We do not, however, find any legal requirement or practical need for any more hearings, with or without cross-examination, in order to answer the three major general issues posed in the instant cases. Petitioners have had ample opportunities to present their views to the agency. A full record has been written. There has already been an inordinate delay of five years longer than Congress contemplated.

3. The RAM Model

The petitioners in these cases center most of their criticisms upon the United States EPA's use of the Real-Time Air-Quality-Simulation Model ("RAM") which was employed by the agency in preparation of the Ohio sulfur dioxide control plan. RAM is a dispersion model which evaluates the interaction

of a variety of facts in order to make predictions concerning the contribution to the pollution of the ambient air by specific plants. Its formula takes into account the capacity of each plant on a stack-by-stack basis and adds thereto smokestack height, surrounding terrain, and weather conditions. The model is operated on the assumption that the plants concerned operate 24 hours a day at full capacity and predictions are made for every day of the year. The ultimate standards are set according to the predicted second-worst day in terms of pollution results shown.

In comparison to all other prior methods of controlling pollution, RAM starts with a solid, ascertainable data base. This is the established design capacity of the power plants in question related to the sulfur content of the fuel used by each. From these factors the "emissions data" for each plant is developed.

When stack height, wind, weather, terrain, land use, etc., are figured in, the RAM model has the additional value of allowing its user to predict with considerable accuracy the relative contributions of specific power plant stacks to the points of maximum concentration of pollution of the ambient air.

The RAM model was actually developed as a result of United States EPA's public hearings on the proposed plan for Ohio after five days of hearings on said proposed plan in Columbus, Cleveland, Cincinnati, and Steubenville at which petitioners involved in this current litigation were given an opportunity (which most accepted) to appear, testify, or submit comments. At those hearings the major source of criticism from industries, including some of the present petitioners, was that the plan then under consideration did not determine limitations by individual stacks to a sufficient degree. EPA in its brief in this case compares the "rollback" model employed in the preparation of the first Ohio plan to dispersion

models like RAM, which is now the source of present controversy:

> Unlike the rollback model, the dispersion models used in developing the promulgated plan allow a determination of the cause-effect relationship between the SO_2 emissions of the pollution sources in an area and the resulting ambient air quality. Therefore, it is possible to determine the proportion by which each source must reduce emissions to meet ambient standards. With the use of the rollback model, in contrast, each source's emissions in the region, whether or not they contributed to a pollution problem, were required to be reduced. Through dispersion modeling, emission limitations can now be set with increased precision. Overcontrol is minimized, so that the plan will still insure attainment and maintenance of the air quality standards, but at a much reduced cost to the sources. This is most clearly demonstrated by comparing emission limitations for power plants under the various plans. Power plants account for approximately 80% of the sulfur dioxide emisisons in the State.
>
> However, achievement of this added precision requires a massive analytical task. Tremendous amounts of data are required for each source analyzed. In addition to the emissions data for each source, dispersion modeling requires detailed information on all the factors that affect the dispersion of emissions. These include the height of the source's stack (or usually stacks), the spatial orientation of the sources to each other, the topography of the area and the effects it will have on dispersion, and, of crucial importance, detailed weather data for the area.
>
> All this information is needed so that the computer analysis reflects actual conditions. For example, a gaseous pollutant emitted over a grassy field will disperse much differently than if the pollutant is emitted over a large urban area. There the dispersion will be affected not only by the local weather conditions but also by the greater

> turbulence caused by the different types of surface areas and heat sources throughout a city.

EPA goes on to point out that there are more than 1,000 point sources in the State of Ohio and more than 2,000 area sources, and that in relation to emission data, United States EPA utilized (among other sources) the data base on sulfur dioxide required to be reported to the State of Ohio under OHIO REV. CODE ANN. §§ 3704.03(I), 3704.05(c) (Page 1971 & 1976 Supp.).

It is, of course, no part of the responsibility of this court to determine whether the RAM model represents the best possible approach to determining standards for the control of sulfur dioxide emissions. Our standard of review of the actions of United States EPA is whether or not the action of the agency is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 305(a), 91 Stat. 775 (to be codified as 42 U.S.C. § 7607(d)(9)(A)). Thus, we are required to affirm if there is a rational basis for the agency action and we are not "empowered to substitute [our] judgment for that of the agency." *Citizens to Preserve Overton Park* v. *Volpe*, 401 U.S. 402, 416 (1971).

Our review of this record convinces us that we cannot properly hold that United States EPA's adoption of the RAM model for predicting sulfur dioxide emissions and for fixing maximum levels of sulfur dioxide emissions by specific sources was arbitrary and capricious or beyond the agency's authority under the Clean Air Act. The factors cited below support EPA's argument that the RAM model is supported by sufficient evidence so that EPA's adoption cannot be held arbitrary and capricious:

1) United States EPA's use of the "rollback" model – the principal basis of its first plan on which five days of public hearings were conducted in Ohio – was strenuously objected

to by representatives of many of the present petitioners because it was not source-specific and, as a consequence, tended to require more stringent sulfur dioxide controls than would be required if plant capacity, fuel, population, smokestack height, wind and climate were all taken into account. Thus John R. Martin, of Smith & Singer Meterologists, Inc., commented on behalf of Ohio utilities on the first United States EPA plan as follows:

> More sophisticated modeling is necessary in all seven of the urban counties that use the proportional rollback. In this way, the Federal air quality standards can be attained without unnecessary SO_2 emission restrictions being imposed upon sources that do not contribute to an SO_2 problem.
>
> • • •
>
> We recommend that new strategies be tested which will more fairly identify and control SO_2 sources that create SO_2 problems.

Similarly Dr. Howard M. Ellis, of Enviroplan, Inc., said on behalf of Ohio power plants:

> [I]n developing an SO_2 control program for this plant, Region V did not consider economically efficient alternatives to constant uniform emission standards – alternatives such as utilizing a supplementary control system to achieve air quality standards or using separate SO_2 emission standards by stack in accordance with each stack's contribution to ground-level SO_2 concentrations. Separate emission standards by stack can reduce considerably the cost of achieving air quality standards . . . .

2) EPA responded to these arguments favorably by devising and adopting the RAM model which did employ all of these source-specific factors.

3) Further, as shown on the following charts, the United

States EPA 1976-1977 SO_2 control plan (principally based upon the RAM and MAX-24 models) shows less stringent regulation on a county-by-county basis when compared to the Ohio SO_2 control plans originally promulgated in 1972 and 1974. In addition, when the comparison is limited to petitioners involved in this litigation, but including all of their facilities which were subjected to RAM modeling (and which are identified in this record), we find the plan slightly less strict on a facility comparison basis than the Ohio 1972 plan by a count of 24 to 17, and slightly more strict than the Ohio 1974 plan by a count of 23 to 20.

These comparisons do not, of course, necessarily demonstrate RAM's accuracy. Rather, the comparison with Ohio's previous plans (based upon the earlier rollback model which was used and accepted nationwide) tends simply to show that the choice of RAM modeling lay within administrative discretion.

RELATIVE STRINGENCY OF US EPA REGULATIONS AND PREVIOUSLY PROMULGATED REGULATIONS

		Ohio EPA 1972 regs for:	Ohio EPA 1974 regs for:	
1.	US EPA 1976-77 urban RAM regs are:			
	stricter than	14	20	of petitioners' facilities[a]
	less strict than	21	17	"
	the same as	1	1	"
	ambiguous[b] compared with	6	4	"
2.	US EPA 1976-77 rural RAM regs are:			
	stricter than	3	3	"
	less strict than	3	3	"
	the same as	0	0	"
	ambiguous[b] compared with	0	0	"

3. US EPA 1976-77 regs (all models) are:			
stricter than	4	7	Ohio counties[c]
less strict than	40	35	"
the same as	0	0	"
ambiguous[b] compared with	24	26	"
4. US EPA 1976-77 regs (all models) are:			
stricter than	22	32	of petitioners' facilities[a]
less strict than	50	43	"
the same as	1	1	"
ambiguous[b] compared with	14	11	"

[a] Including facilities to the regulation of which petitioners do not object.

[b] *I.e.*, stricter for some stacks or facilities and less strict for others; or employing different units of measurement, rendering comparison impossible; or insufficient data available for meaningful comparison.

[c] Twenty other counties contain no point sources of SO_2 emissions.

All comparisons are based on the data set out in Appendices A, B and C.

4) While this court has currently before it some 32 petitioners protesting the United States EPA's plan for SO_2 emission control for Ohio, it must be remembered that Ohio is estimated to have over 1,000 point sources and over 2,000 area sources of SO_2 pollution.

5) The RAM model is a general formula which can be applied to many individual sources of pollution to derive specific estimates of SO_2 emission rates for each. It employs a wider, more complete and more accurate data base than any prior model yet employed in devising a sulfur dioxide control strategy for a state or county. The crucial data with which the RAM model starts is the design capacity figure, plus the fuel sulfur content, from which is computed the SO_2 emission rate for each of the heating or power plants sought to be controlled. Thus at the outset the RAM model starts with ascertainable specific figures for each source where disputes can be resolved by inspection of the equipment or fuel concerned. Many of the additional components such as stack height, wind direction, physical relationship of sources to each other, and topography of the area are similarly ascertainable as matters of fact. With the enormous financial stakes involved in this litigation, every effort to avoid disputes about the accuracy of the data base should be made. This record shows that United States EPA's design of the RAM model was brought about at least in large part by Ohio industry's requests for greater specificity and hence lower costs of compliance with National Air Quality Standards.

6) While there may yet be developed (and hopefully will be) a better method of establishing a control strategy for sulfur dioxide emissions than the RAM model, no one has yet come forward with such. Nor do petitioners point to any such.

This is not to ignore that petitioners do cite Enviroplan's claims of a superior model termed Air Pollution Evaluation

System. This record shows, however, that United States EPA asked for the Enviroplan model and was refused, and is now refused the operative details of that model on the grounds of proprietary interest. While such withholding may be both defensible as a matter of law, and understandable as a matter of economics, this court cannot consider Enviroplan's model as available technology until and unless it is fully disclosed and evaluated by United States EPA — the agency charged by Congress with making these decisions.

7) We recognize that this record does not present positive proofs of the accuracy of RAM's predictions. Thus far technology has not developed foolproof methods for validating predictions concerning pollution of the ambient air absent years of collection of monitoring data with far more monitors and far more personnel than have thus far been available. Obviously, also, the monitor locations and the receptor sites for the RAM predictions must correspond.

We find such identity of monitor locations and receptor sites available in this administrative record for the City of Dayton.

The EPA Appendix contains:

1) RAM model computer printouts showing predicted second-highest 24-hour concentrations of sulfur dioxide for several receptor sites, and the location of those sites. (EPA Appendix, Vol. IV, at 85-94, Certified Index XIII. EEE.1.a.3.);

2) Air quality data for 1972-76 at several Dayton sulfur dioxide monitors (EPA Appendix, Vol. IV, at 61, 79, Certified Index XV.K.2.r. and s.); and

3) The locations for the Dayton monitors (EPA Appendix, Vol. IV, at 95-96, Certified Index XII.B.4.a.(1)(d)).

The following chart displays the data contained in these documents:

Site No.	Second-Highest 24-hr Concentration Predicted by RAM (micrograms per cubic meter)	Actual Monitor Readings (micrograms per cubic meter)				
		1972	1973	1974	1975	1976
1	195	•	•	219	•	•
2	201	73	438	181	163	81
3	83	•	•	117	62	57
4	109	•	•	151	109	17
5	161	57	198	•	68	41
6	207	•	13	66	110	75

Our analysis of these data[4] shows that the yearly second-highest concentration of SO_2 pollution (for a 24-hour average) actually recorded on available monitors exceeded the RAM model prediction for each location once in a five-year period at five out of six locations. This analysis certainly falls short of showing RAM's predictive perfection. But it certainly tends to show that the EPA's use of RAM, if conservative, cannot be held to be arbitrary and capricious. *See Sierra Club* v. *EPA*, 540 F.2d 1114, 1136 (D.C. Cir. 1976), *cert. granted on different issues*, 97 S.Ct. 1597 (1977). *See also Mision Industrial, Inc.* v. *EPA*, 547 F.2d 123, 128-29 (1st Cir. 1976).

We recognize that petitioners presented Enviroplan's study on RAM predictions and existing monitor results for the three counties in which Akron, Toledo and Canton are located, and that they contend that the study's results show gross over-predictions by RAM. Reevaluation of RAM predictions, however, showed that most discrepancies were occasioned by data

[4] Petitioners object with vehemence to EPA's reference in its brief to its discussion of these data as a "study," calling our attention to the fact that the comparison was made by EPA attorneys after the closing of the record. Clearly, however, the raw data to which we have referred and which we have inspected were and are available in the administrative record of this case.

errors factored into the original RAM predictions for these three counties.

We have also considered the argument based on the Hamill study of RAM's application to St. Louis and Enviroplan's subsequent study thereof. While this latter commentary must be taken into account, when weighed against all other record evidence it fails to convince us that United States EPA's use of RAM was arbitrary and capricious.

8) Finally, as we pointed out at the beginning of this opinion, SO_2 emissions have a direct impact upon the health and the lives of the population of Ohio – particularly its young people, its sick people, and its old people. If the RAM model did overpredict emission rates, such a conservative approach in protection of health and life was apparently contemplated by Congress in requiring that EPA plans contain "emission limitations . . . necessary to *insure* attainment and maintenance" of national ambient air standards. 42 U.S.C. § 1857c-5(a)(2)(B) (1970). (Emphasis added.)

In summary, we hold that United States EPA's adoption and employment of the RAM model as its general working tool was based upon informal rulemaking which satisfied both the requirements of the Clean Air Act, the Administrative Procedure Act, and the due process requirements of the United States Constitution. Further, the record indicates that the Administrator's action in promulgating the sulfur dioxide control regulations for Ohio through use of the RAM model was a rational choice which was well within the discretion committed to him and his agency. We decline petitioners' requests to set the disputed orders aside on the ground that they are arbitrary and capricious.

OTHER ISSUES

Somewhat half-heartedly the leading brief for the utilities attacks the United States EPA plan for SO_2 controls in Ohio as excessively costly and asserts that the satisfactory operation of Flue Gas Desulfurization machinery ("scrubbers") has not been demonstrated.

We note that the United States EPA control strategy for Ohio does not rely heavily upon Flue Gas Desulfurization. (EPA estimates – and petitioners do not dispute – that only six utilities will choose this compliance route.) Alternatives to installation of "scrubbers" are the purchasing and use of low sulfur coals or the employment of coal cleaning or blending techniques. There is no doubt, of course, that SO_2 controls will indeed be costly. EPA estimates capital costs for Ohio industry of well over half a billion dollars and annual costs of 171 million dollars. It also projects these costs as requiring a 3% increase in annual electric bills for the consumers who will ultimately pay them – and who will also breathe the less polluted air. Basically the choice of economic burden versus continued deterioration of the air we breathe was made by Congress. In this litigation no issue is raised concerning Congress' power to do so.

We have genuine doubt that this court has the power to review what we regard as petitioners' slightly disguised economic and technological infeasibility arguments. *See generally Union Electric Co.* v. *EPA*, 427 U.S. 246, 265-66 (1976).[5] Since this issue does not appear to be definitely resolved as to a United States EPA-designed implementation plan (such as we deal with here), *see Union Electric Co.* v. *EPA, supra* at 261 n.7, we observe that if we did have such power, we

[5] United States EPA's SO_2 control plan for Ohio has as its goal the attainment of national air quality standards. It does not seek to exceed them. *See* Note, *The Clean Air Act: "Taking a Stick to the States,"* 25 CLEVE. ST. L. REV. 371, 405 (1976).

would conclude that the technical record compiled in the agency proceeding provides ample support for the economic and technological feasibility of the SO_2 control strategies which United States EPA has promulgated for Ohio.

Petitioners, Cleveland Electric Illuminating Co. and Dayton Power & Light Co., enter objections to the classification of three power plants as "urban." Inspection of the geographic location of these plants and of the population distribution in the near vicinity convinces us that the United States EPA classification cannot properly be termed arbitrary and capricious. Power plant pollution of the ambient air is no respecter of municipal boundary lines.

We note petitioners' objection to the use of the urban dispersion coefficients employed in the RAM model. EPA defends their use by citing the St. Louis study and by noting that no better or more accurate coefficients are available. Since to this observation petitioners reply by asking for more study, we conclude that study should progress while the purposes of the Clean Air Act were being served rather than by indefinite postponement of EPA's mandated task of reducing SO_2 pollution in Ohio.

No other material issues are presented.

One petition pending before this court from the Northern Ohio Lung Association attacks United States EPA's failure to promulgate a separate implementation plan for the "secondary standards" for the ambient air. This petition will be the subject of separate consideration.

Similarly, this opinion does not govern any petitions where the RAM model was not used. We do not decide any specific fact disputes raised by any petitioner as to plants other than those treated in this opinion.[6] Decision of these cases will follow.

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[6] *See* note 1, *supra*.

For the reasons stated above, the decision of the Administrator in imposing the SO_2 control plan is affirmed subject to the reservations indicated above.

No costs are allowed since important public questions are involved.

APPENDIX A

COMPARISON OF PROMULGATED REGULATIONS CONCERNING SULFUR DIOXIDE EMISSION LIMITATIONS FOR THE STATE OF OHIO

Footnote list:

a. Source: Ohio Environmental Protection Agency Reg. EP-11-14 (AP-3-14), effective July 17, 1972 (available from Anderson Publishing Co., Cincinnati, Ohio). See Appendix B.

b. Source: Ohio Environmental Protection Agency Reg. EP-11-13, effective Feb. 1, 1974 (available from Anderson Publishing Co., Cincinnati, Ohio). See Appendix C.

c. Source: 41 Fed. Reg. 36,324-40 (Aug. 27, 1976); 41 Fed. Reg. 42,455-56 (Nov. 30, 1976); 42 Fed. Reg. 27,588-93 (May 31, 1977).

d. All figures represent lbs. SO_2 per million British Thermal Units (mBTU) heat input, unless otherwise specified.

e. Located in Morgan and Washington Counties.

f. Optional compliance equation omitted from chart.

g. No present objection to regulation of this facility.

h. Not regulated.

i. Excluding sources subject to New Source Performance Standards.

j. Subject to New Source Performance Standards.

k. Additional limitations, specified in units other than lbs. SO_2/mBTU heat input, omitted from chart.

m. Information not available.

County; Model(s) employed — Petitioner; facility	Ohio EPA 1972[a]	Ohio EPA 1974[b]	Current US EPA Reg.[c]	Model
Adams(MAX)	3.2[d]	4.8	3.16	
Dayton Power & Light, Stuart plant			3.16[f]	MAX
Allen(Rural RAM; MAX)	1.0	1.0	0.13-5.39[k]	
Standard Oil, Lima refinery				Rural RAM
Claus unit			100 lbs. SO_2 / 1000 lbs.S	
Catalytic cracker/CO boiler			.30 lbs. SO_2 / 1000 lbs. product	
Trolumen unit			11 lbs. SO_2 / ton production	
Iso stabilizer, split heaters			0.71	
Vac I heater			0.21	
All other units			0.13	
Standard Oil, Vistron plant[g]			1.27	Rural RAM
Ohio Power, Woodcock plant[g]			4.38	MAX
Ashland(no sources)	1.6	4.8	h	-
Ashtabula(SCIM)	1.6	1.0	1.30-9.10	
Cleveland Elec. Illum., Ashtabula plant[g]				SCIM
Stacks 1-3			2.40	
Stack 4			9.10	
Stack 5			8.20	
Athens(MAX; SCIM)	1.6	4.0	3.72-7.50[i]	
Columbus & So. Ohio Power, Poston plant				MAX
Stacks 1 & 2			3.72[f]	
Stack 3			1.20[f,j]	
Auglaize(SCIM)	1.0	4.0	4.20	
Goodyear Tire and Rubber[g]			4.20	SCIM

County; Model(s) employed — Petitioner; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Current US EPA Model
Belmont(MAX; modified rollback)	1.0	1.6	2.60	
Wheeling-Pittsburgh Steel, Martins Ferry			2.60	rollback
Ohio Edison, Burger plant			h	
Brown(no sources)	3.2	4.8	h	-
Butler(Rural RAM)	1.6	1.6	0.50-3.43[k]	
Armco, Hamilton coke plant			0.73	Rural RAM
Armco, Middletown plant				Rural RAM
Boilers B1-B4			2.11	
Boilers B7-B10			1.79	
General Motors, Hamilton Fisher Body			1.40	Rural RAM
Carroll(no sources)	1.0	4.0	h	-
Champaign(no sources)	1.0	4.8	h	-
Clark(MAX)	1.6	4.8	1.00-4.62	
Ohio Edison, Mad River plant[g]				MAX
Stacks 1-3			4.62[f]	
Stacks 4 & 5			1.00	
Clermont(MAX)	1.6	4.8	2.02	
Cincinnati G. & E., Beckjord plant			2.02[f]	MAX
Clinton(no sources)	3.2	4.0	h	-
Columbiana(MAX)	1.0	1.0	4.40	
Ohio Edison, East Palestine plant[g]			4.40	MAX
Coshocton(MAX)	1.0	1.6	5.66[i]	
Columbus & So. Ohio Elec., Conesville				MAX
Stacks 1-3			5.66[f]	
Stack 4			1.20[j]	

County; Model(s) employed — Petitioner; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Crawford(MAX)	1.6	4.8	9.60	
Cuyahoga(RAM)	1.0	1.0	0.50-4.60[k]	
Allied Chemical			4.8 lbs. SO_2 / ton of acid	RAM
Republic Steel				RAM
Oxygen furnace, open hearth, blast furnaces, foundry, etc.			1.20[k]	
84" slab furnaces			1.24[k]	
Boilers			1.00	
Cleveland Elec. Illuminating, Lakeshore				RAM
Unit 18			1.30	
Units 91-94			1.90	
Cleveland Elec. Illumination, Hamilton Ave.			1.00	RAM
U. S. Steel, Cuyahoga-Lorain works			0.50	RAM
U. S. Steel, Cuyahoga works			1.30	RAM
Dupont				RAM
Boiler 18			0.50	
Sulfuric acid units			10 lbs. SO_2 / ton of acid	
Standard Oil, Cleveland Asphalt plant			0.50	RAM
General Motors, Fisher Body plant			2.10	RAM
Darke(no sources)	1.6	4.8	h	-
Defiance(MAX)	1.0	4.0	h	
Delaware(MAX)	3.2	4.8	4.00	
Erie(MAX)	3.2	1.6	1.60[k]	
Fairfield(MAX)	3.2	4.0	6.90-7.00	

County; Model(s) employed — Petitioner; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Fayette(no sources)	3.2	4.0	h	-
Franklin(RAM)	3.2	3.2	1.06-4.80[k]	
White-Westinghouse			2.20	RAM
General Motors, Fisher Body plant			1.50	RAM
Fulton(no sources)	1.0	4.8	h	-
Gallia(MAX; SCIM)	3.2	4.8	8.20-9.50	
Ohio Power, Gavin plant[g]			9.50	MAX
Geauga(MAX)	1.0	4.8	h	
Greene(MAX; Rural RAM; SCIM)	1.6	4.0	0.30-6.20[k]	
Guernsey(MAX)	1.0	4.8	h	
Hamilton(modified rollback; MAX; SCIM)	1.6	1.6	0.30-5.50[k]	
Cincinnati G. & E., Miami Fort plant				MAX
Stack 2			0.30	
Stacks 3 & 4			3.30	
Stack 5			5.50	
Stack 6			1.20[j]	
Dupont, Fort Hill plant			21 lbs. SO_2 / ton of acid	MAX
Hancock(MAX; SCIM)	1.0	3.2	2.50-5.20	
Hardin(MAX)	1.0	4.0	h	
Harrison(no sources)	1.0	4.0	h	-
Henry(MAX)	1.0	1.6	2.10	
Highland(no sources)	3.2	4.0	h	-

County; Model(s) employed — Petitioner; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Current US EPA Model
Hocking(no sources)	3.2	3.2	h	-
Holmes(MAX)	1.6	3.2	h	
Huron(MAX)	3.2	4.0	8.00	
Jackson(no sources)	3.2	4.0	h	-
Jefferson(MAX; modified rollback)	1.0	1.0	0.80-8.10[k]	
Wheeling-Pittsburgh Steel, Yorkville			4.20	rollback
Wheeling-Pittsburgh Steel, Steubenville (2 plants)[g]			50 gr. H_2S / 100 dscf gas	rollback
Ohio Edison, Sammis plant			2.91[f]	MAX
Ohio Edison, Toronto plant[g]			8.10	MAX
Ohio Power, Cardinal plant[g]			4.76[f]	MAX
Ohio Power, Tidd plant[g]			1.58[f]	MAX
Knox(MAX)	1.6	3.2	h	
Lake(RAM)	1.0	1.6	0.55-6.00[k]	
Cleveland Elec. Illum., East Lake plant			1.43[f]	RAM
Republic Steel lime plant[g]			4.21 lbs. SO_2 / ton input	RAM
Lawrence(MAX; Rural RAM)	3.2	1.6	1.22-5.52[k]	
Allied Chemical, Semet-Solvay			5.52	Rural RAM
Licking(MAX)	3.2	3.2	1.50	
Logan(no sources)	1.0	4.8	h	-
Lorain(RAM)	1.0	1.6	0.17-3.40[k]	
Cleveland Elec. Illum., Avon Lake plant			1.15[f]	RAM
Ohio Edison, Edgewater plant			3.40	RAM
B. F. Goodrich			1.70	RAM

County; Model(s) employed — Petitioner; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Lorain(RAM) (cont.)	1.0	1.6	0.17-3.40[k]	
General Motors, Fisher Body Elyria plant				RAM
Boilers 1 & 2			0.80	
Boiler 4			0.90	
Other units			1.80	
U. S. Steel				RAM
Boilers 1-9			1.20	
Boilers 10-13			0.50	
Processes P033 & P039			0.17[k]	
All other processes			0.40[k]	
Lucas(RAM)	1.0	1.0	0.04-4.99[k]	
Toledo Edison, Bayshore station			0.50-1.20	RAM
Toledo Edison, Acme power plant			1.00-3.00	RAM
Toledo Edison, Water St. steam plant[g]			1.06	RAM
Standard Oil[g]			0.29-1.00[k]	RAM
Coulton Chemical			0.80[k]	RAM
Gulf Oil			0.04-0.81[k]	RAM
Interlake Steel			0.10[k]	RAM
General Motors, Chevrolet plant			1.30	RAM
Madison(MAX)	3.2	4.8	h	
Mahoning(modified rollback)	1.6	1.6	0.50-2.00[k]	
Ohio Edison, North Ave. plant			2.00	rollbac
Koppers Co.			2.00	rollbac
Youngstown Sheet & Tube (2 plants)			0.50-0.68[k]	rollbac
Republic Steel			0.50-0.68[k]	rollbac
Marion(Rural RAM)	1.6	4.0	4.20-6.10	
Medina(MAX)	1.0	4.8	8.00	
Meigs(other modelling strategy)	1.6	4.8	$\frac{11 \text{ lbs. } SO_2}{\text{ton input}}$	

County; Model(s) employed — Petitioners; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Mercer(MAX)	1.0	4.0	8.00	
Miami(MAX)	1.6	4.0	3.20-4.78[k]	
Monroe(no sources)	1.0	1.6	h	-
Montgomery(RAM)	1.6	1.6	0.65-1.60[k]	
Dayton P. & L., Tait plant			0.65-1.25	RAM
Dayton P. & L., Hutchings plant			0.65-1.20[f]	RAM
Dayton P. & L., Yankee & Monument			0.65	RAM
Morgan(MAX)	1.6	3.2	6.48	
Ohio Power, Muskingum R. plant[e]			6.48[f]	MAX
Morrow(no sources)	1.6	4.8	h	-
Muskingum(MAX)	1.0	4.0	1.14[k]	
Ohio Power, Philo plant[g]			1.14[f]	MAX
Noble(no sources)	1.0	4.8	h	-
Ottawa(MAX)	3.2	4.8	5.90[k]	
Paulding(MAX)	1.0	4.0	$\frac{43 \text{ lbs. } SO_2}{\text{ton input}}$	
Perry(no sources)	3.2	4.8	h	-
Pickaway(MAX)	3.2	1.6	0.85-6.04	
Columbus & So. Ohio Elec., Picway plant			6.04[f]	MAX
Pike(MAX)	3.2	4.8	7.00	
Portage(MAX)	1.0	4.8	h	
Preble(MAX)	1.6	4.8	h	

County; Model(s) employed — Petitioners; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Putnam(MAX)	1.0	4.8	h	
Richland(MAX; SCIM)	1.6	1.6	3.10-9.30[k]	
White-Westinghouse[g]			4.50	MAX;SCIM
General Motors, Fisher Body[g]			3.10	MAX;SCIM
Ross(MAX)	3.2	3.2	4.9 lbs. SO_2 / ton input	
Sandusky(MAX; SCIM)	3.2	4.0	7.00[k]	
Scioto(MAX)	3.2	4.8	0.60-6.90[k]	
Seneca(MAX; SCIM)	3.2	3.2	1.20-8.20[k]	
Shelby(no sources)	1.0	3.2	h	-
Stark(RAM)	1.0	4.8	0.47-5.20[k]	
Republic Steel, Massillon plant[g]			4.40	RAM
Timken, Gambrinus plant				RAM
Boilers 1 & 2			3.08	
Boiler 3			0.93	
Timken, Canton No. 5 plant			0.67	RAM
Hoover			2.50	RAM
Summit(RAM)	1.0	1.0	0.70-6.10[k]	
Firestone Tire & Rubber			1.78	RAM
Firestone, Seiberling division			1.33	RAM
B. F. Goodrich			2.71	RAM
Goodyear Tire & Rubber, Plant I			1.80-3.96[k]	RAM
Goodyear Tire & Rubber, Plant II			1.84[k]	RAM
Ohio Edison, Beech St. station			2.71	RAM
Ohio Edison, Gorge power plant			2.56	RAM
PPG Industries			1.78	RAM

County; Model(s) employed — Petitioner; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Trumbull(MAX; modified rollback)	1.6	1.0	0.50-5.41[k]	
Republic Steel[g]			1.00-1.60[k]	rollback
Ohio Edison, Niles plant[g]			5.41[f]	MAX
U. S. Steel, McDonald mills			0.50	rollback
GM, Packard Electric Warren plants (2)			m	rollback
Tuscarawas(MAX)	1.0	1.6	4.60[k]	
Union(no sources)	3.2	4.0	h	-
Van Wert(MAX)	1.0	4.8	h	
Vinton(MAX)	3.2	4.0	4.80	
Austin Powder			4.80	MAX
Warren(MAX)	1.6	4.8	h	
Washington(MAX)	1.6	1.6	2.50-6.48	
Shell Oil			2.50	MAX
Ohio Power, Muskingum R. plant[e]			6.48	MAX
Wayne(MAX; SCIM)	1.6	1.6	7.00	
Williams (MAX)	1.0	4.0	h	
Wood(RAM)	1.0	4.0	1.10	
Wyandot(no sources)	1.6	4.8	h	

APPENDIX B

OHIO EPA 1972 REGULATIONS

EP-11-14 (AP-3-14) Restrictions on emission of sulfur dioxide from the use of fuel.

(B) Emission limitations.

(1) No person shall cause, suffer, allow, or permit the emission of sulfur compounds caused by the combustion of fuel in fuel-burning equipment from any stack or chimney in excess of the quantity set forth in Figure III.

(2) All persons located within air control regions classified as Priority I Regions shall attain or exceed that degree of emission reduction specified by Curve P-1 by the effective date of this regulation.

(3) All persons located within air quality control regions classified as Priority II Regions shall attain or exceed that degree of emission reduction specified by Curve P-2 by the effective date of this regulation.

(4) All persons located within air quality control regions classified as Priority III Regions shall attain or exceed that degree of emission reduction specified by Curve P-3 by the effective date of this regulation.

(5) All persons located within air quality control regions classified as Priority II or III Regions shall attain or exceed, no later than July 1, 1975, that degree of emission reduction specified by Curve P-1.

(Adopted July 6, 1972; effective July 17, 1972.)

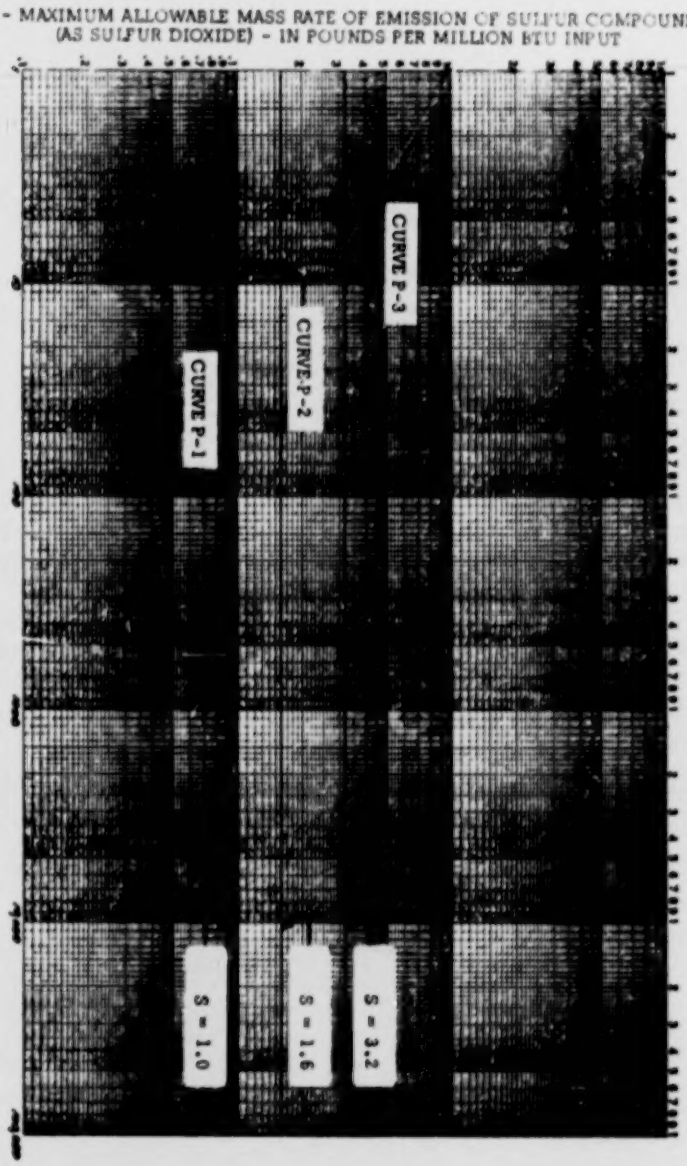


FIGURE III

EP 11-13

EP-11-06 (AP-3-06) Classification of regions.

CLASSIFICATION BY REGIONS (See Figure IV at end of EP-11)

FEDERAL PRIORITY CLASSIFICATION — BY POLLUTANT — FEDERAL REGISTER, MAY 31, 1972

AIR QUALITY CONTROL REGION	FEDERAL NUMBER	PARTICULATES	SO_x	CO	NO_x	$PhtO_x$
Cincinnati (Ky.-Ind.)	079	I	II	III	I	I
Cleveland (Akron, Canton, etc.)	174	I	I	III	I	I
Columbus	176	I	III	III	I	I
Dayton	173	I	II	III	I	I
Mansfield-Marion	175	II	II	III	III	III
Marietta (W. Va.)	179	I	II	III	III	III
Northwest Ohio	177	II	I	III	III	III
Portsmouth-Ironton (Ky.-W.Va.)	103	I	III	III	III	III
Sandusky	180	III	III	III	III	III
Steubenville (W. Va.)	181	I	I	III	III	III
Toledo (Michigan)	124	I	I	III	I	I
Wilmington-Chillicothe-Logan	182	III	III	III	III	III
Youngstown	178	I	II	III	III	III
Zanesville	183	II	I A	III	III	III

FIGURE IV

EP 11-06 (AP 3-06)

CLASSIFICATION BY REGIONS

APPENDIX C

OHIO EPA 1974 REGULATIONS

EP-11-13 Restrictions on emission of sulfur dioxide from use of fuel.

(B) Emission limitations.

(1) No person shall cause, permit, or allow the emission of sulfur oxides from any facility as defined in subsection (A) (2) of this regulation in excess of the quantity set forth in Table II (Figure V following EP-11) for the county in which the source is located.

(2) No person shall cause, permit, or allow the emission of sulfur oxides in excess of 1.0 pounds per one million BTU of heat input from any new facility made up of one or more new sources with a combined capacity of 100 million BTU per hour or more for which a Permit to Install or Permit to Construct was not obtained before February 1, 1974. New sources with a combined capacity of less than 100 million BTU per hour shall comply with the emission limitations in paragraph (1) of this subsection.

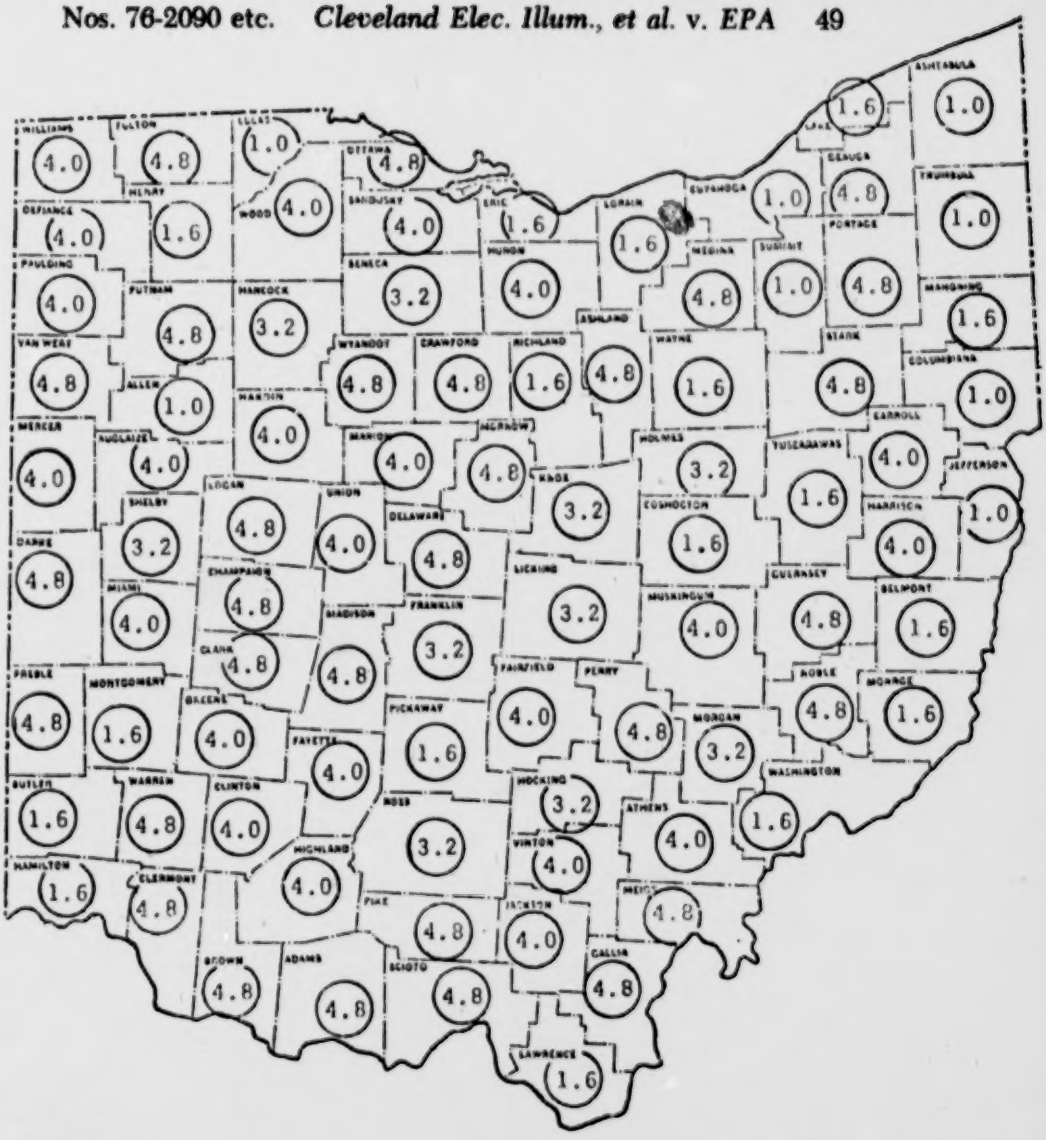
(Adopted January 21, 1974; effective February 1, 1974.)

TABLE II (See Figure V at end of EP-11)

COUNTY	SULPHUR DIOXIDE ALLOWABLE EMISSIONS
Allen Ashtabula Columbiana Cuyahoga Jefferson Lucas Summit Trumbull	1.0 pounds of sulfur dioxide per million BTU of heat input

COUNTY	SULPHUR DIOXIDE ALLOWABLE EMISSIONS
Belmont Butler Coshocton Erie Hamilton Henry Lake Lawrence Lorain Mahoning Monroe Montgomery Pickaway Richland Tuscarawas Washington Wayne	1.6 pounds of sulfur dioxide per million BTU of heat input
Franklin Hancock Hocking Holmes Knox Licking Morgan Ross Seneca Shelby	3.2 pounds of sulfur dioxide per million BTU of heat input

COUNTY	SULPHUR DIOXIDE ALLOWABLE EMISSIONS
Athens Auglaize Carroll Clinton Defiance Fairfield Fayette Greene Hardin Harrison Highland Huron Jackson Marion Mercer Miami Muskingum Paulding Sandusky Union Vinton Williams Wood	4.0 pounds of sulfur dioxide per million BTU of heat input
All other counties:	4.8 pounds of sulfur dioxide per million BTU of heat input



LEGEND:

1.0 = 1.0 pounds of sulfur dioxide per million BTU of heat input

1.6 = 1.6 pounds of sulfur dioxide per million BTU of heat input

3.2 = 3.2 pounds of sulfur dioxide per million BTU of heat input

4.0 = 4.0 pounds of sulfur dioxide per million BTU of heat input

4.8 = 4.8 pounds of sulfur dioxide per million BTU of heat input

FIGURE V (Table II)

EP 11-13

SULFUR DIOXIDE EMISSION LIMITATIONS

APPENDIX D

Judgment of the United States Court of Appeals for the Sixth Circuit

APPENDIX D

Nos. 76-2090, 77-1367, 76-2232, 77-1361
76-2241, 77-1357, 76-2278

UNITED STATES COURT OF APPEALS
FOR THE SIXTH CIRCUIT

CINCINNATI GAS & ELECTRIC CO., COLUMBUS & SOUTHERN OHIO ELECTRIC CO., DAYTON POWER & LIGHT CO., OHIO EDISON CO., OHIO POWER CO., SHELL OIL CO., AUSTIN POWDER CO., E. I. DUPONT DENEMOURS & CO., *Petitioners*,

v.

ENVIRONMENTAL PROTECTION AGENCY AND DOUGLAS M. COSTLE, ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY, *Respondents*.

Filed June 29, 1978

Judgment

Before: PHILLIPS, Chief Judge, EDWARDS and PECK, Circuit Judges.

On petition to review certain regulations promulgated by the Administrator of the Environmental Protection Agency,

These causes came on to be heard on the record of proceedings before the Environment Protection Agency and were argued by counsel.

Upon consideration, it is now ordered, adjudged and decreed by this Court that the petitions in the following cases are remanded to the United States EPA for reconsideration of the employment of Class A coefficients in least stable wind conditions in rural counties:

Nos. 76-2090, 77-1367:

Dayton Power & Light Company
(Adams Count facilities only);

Ohio Power Company
(all facilities);

Columbus & Southern Ohio Electric Co.
(Coshocton County facility only);

Nos. 76-2241, 77-1357:

Austin Powder Company
(all facilities)

It is also ordered, adjudged and decreed that the petitions of Cincinnati Gas & Electric Co. in 76-2090 and 77-1367 and Shell Oil Co. in 76-2232 and 77-1361 are dismissed.

No costs are to be taxed.

ENTERED BY ORDER OF THE COURT.

/s/ JOHN P. HEHMAN
John P. Hehman
Clerk

APPENDIX E

The Fifth Amendment to the Constitution of the United States

APPENDIX E

Amendment V

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use without just compensation.

APPENDIX F

Relevant provisions of the Administrative Procedure Act, 5 U.S.C. §§ 553 and 706

APPENDIX F

§ 553. Rule making

(a) This section applies, according to the provisions thereof, except to the extent that there is involved—

(1) a military or foreign affairs function of the United States; or

(2) a matter relating to agency management or personnel or to public property, loans, grants, benefits, or contracts.

(b) General notice of proposed rule making shall be published in the Federal Register, unless persons subject thereto are named and either personally served or otherwise have actual notice thereof in accordance with law. The notice shall include—

(1) a statement of the time, place, and nature of public rule making proceedings;

(2) reference to the legal authority under which the rule is proposed; and

(3) either the terms or substance of the proposed rule or a description of the subjects and issues involved.

Except when notice or hearing is required by statute, this subsection does not apply—

(A) to interpretative rules, general statements of policy, or rules of agency organization, procedure, or practice; or

(B) when the agency for good cause finds (and incorporates the finding and a brief statement of reasons therefor in the rules issued) that notice and public procedure thereon are impracticable, unnecessary, or contrary to the public interest.

(c) After notice required by this section, the agency shall give interested persons an opportunity to participate in the rule making through submission of written data, views, or arguments with or without opportunity for oral presentation. After consideration of the relevant matter presented, the agency shall incorporate in the rules adopted a concise general statement of their basis and purpose. When rules are required by statute to be made on the record after opportunity for an agency hearing, sections 556 and 557 of this title apply instead of this subsection.

(d) The required publication or service of a substantive rule shall be made not less than 30 days before its effective date, except—

(1) a substantive rule which grants or recognizes an exemption or relieves a restriction;

(2) interpretative rules and statements of policy; or

(3) as otherwise provided by the agency for good cause found and published with the rule.

(e) Each agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule.

• • • •

§ 706. Scope of review

To the extent necessary to decision and when presented, the reviewing court shall decide all relevant questions of law, interpret constitutional and statutory provisions, and determine the meaning or applicability of the terms of an agency action. The reviewing court shall—

(1) compel agency action unlawfully withheld or unreasonably delayed; and

(2) hold unlawful and set aside agency action, findings, and conclusions found to be—

(A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law;

(B) contrary to constitutional right, power, privilege, or immunity;

(C) in excess of statutory jurisdiction, authority, or limitations, or short of statutory right;

(D) without observance of procedure required by law;

(E) unsupported by substantial evidence in a case subject to sections 556 and 557 of this title or otherwise reviewed on the record of an agency hearing provided by statute; or

(F) unwarranted by the facts to the extent that the facts are subject to trial de novo by the reviewing court.

In making the foregoing determinations, the court shall review the whole record or those parts of it cited by a party, and due account shall be taken of the rule of prejudicial error.

APPENDIX G

Relevant provisions of the Clean Air Act, as amended by the Clean Air Act Amendments of 1970, 91 Pub.L. No. 604, 84 Stat. 1676, formerly codified at 42 U.S.C. §§ 1857 *et seq.*

APPENDIX G

§ 1857c–5. [§ 110.] State implementation plans for national primary and secondary ambient air quality standards—Submission to Administrator; time for submission; State procedures; required contents of plans for approval by Administrator; approval of revised plan by Administrator

(a)(1) Each State shall, after reasonable notice and public hearings, adopt and submit to the Administrator, within nine months after the promulgation of a national primary ambient air quality standard (or any revision thereof) under section 1857c—4 of this title for any air pollutant, a plan which provides for implementation, maintenance, and enforcement of such primary standard in each air quality control region (or portion thereof) within such State. In addition, such State shall adopt and submit to the Administrator (either as a part of a plan submitted under the preceding sentence or separately) within nine months after the promulgation of a national ambient air quality secondary standard (or revision thereof), a plan which provides for implementation, maintenance, and enforcement of such secondary standard in each air quality control region (or portion thereof) within such State. Unless a separate public hearing is provided, each State shall consider its plan implementing such secondary standard at the hearing required by the first sentence of this paragraph.

(2) The Administrator shall, within four months after the date required for submission of a plan under paragraph (1), approve or disapprove such plan or each portion thereof. The Administrator shall approve such plan, or any portion thereof, if he determines that it was adopted after reasonable notice and hearing and that—

(A)(i) in the case of a plan implementing a national primary ambient air quality standard, it provides for the attainment of such primary standard as expedi-

tiously as practicable but (subject to subsection (e) of this section) in no case later than three years from the date of approval of such plan, or any revision thereof to take account of a revised primary standard); and (ii) in the case of a plan implementing a national secondary ambient air quality standard, it specifies a reasonable time at which such secondary standard will be attained;

(B) it includes emission limitations, schedules, and timetables for compliance with such limitations, and such other measures as may be necessary to insure attainment and maintenance of such primary or secondary standard, including, but not limited to, land-use and transportation controls;

(C) it includes provision for establishment and operation of appropriate devices, methods, systems, and procedures necessary to (i) monitor, compile, and analyze data on ambient air quality and, (ii) upon request, make such data available to the Administrator;

(D) it includes a procedure, meeting the requirements of paragraph (4), for review (prior to construction or modification) of the location of new sources to which a standard of performance will apply;

(E) it contains adequate provisions for inter-governmental cooperation, including measures necessary to insure that emissions of air pollutants from sources located in any air quality control region will not interfere with the attainment or maintenance of such primary or secondary standard in any portion of such region outside of such State or in any other air quality control region;

(F) it provides (i) necessary assurances that the State will have adequate personnel, funding, and authority to carry out such implementation plan, (ii)

requirements for installation of equipment by owners or operators of stationary sources to monitor emissions from such sources, (iii) for periodic reports on the nature and amounts of such emissions; (iv) that such reports shall be correlated by the State agency with any emission limitations or standards established pursuant to this chapter, which reports shall be available at reasonable times for public inspection; and (v) for authority comparable to that in section 1857h—1 of this title, and adequate contingency plans to implement such authority;

(G) it provides, to the extent necessary and practicable, for periodic inspection and testing of motor vehicles to enforce compliance with applicable emission standards; and

(H) it provides for revision, after public hearings, of such plan (i) from time to time as may be necessary to take account of revisions of such national primary or secondary ambient air quality standard or the availability of improved or more expeditious methods of achieving such primary or secondary standard; or (ii) whenever the Administrator finds on the basis of information available to him that the plan is substantially inadequate to achieve the national ambient air quality primary or secondary standard which it implements.

(3)(A) The Administrator shall approve any revision of an implementation plan applicable to an air quality control region if he determines that it meets the requirements of paragraph (2) and has been adopted by the State after reasonable notice and public hearings.

• • • •

Preconditions for preparation and publication by Administrator of proposed regulations; promulgation of regulations by Administrator; transportation regulations study and report; parking surcharge; suspension authority

(c)(1) The Administrator shall, after consideration of any State hearing record, promptly prepare and publish proposed regulations setting forth an implementation plan, or portion thereof, for a State if—

(A) the State fails to submit an implementation plan for any national ambient air quality primary or secondary standard within the time prescribed,

(B) the plan, or any portion thereof, submitted for such State is determined by the Administrator not to be in accordance with the requirements of this section, or

(C) the State fails within 60 days after notification by the Administrator or such longer period as he may prescribe, to revise an implementation plan as required pursuant to a provision of its plan referred to in subsection (a)(2)(H) of this section.

If such State held no public hearing associated with respect to such plan (or revision thereof), the Administrator shall provide opportunity for such hearing within such State on any proposed regulation. The Administrator shall, within six months after the date required for submission of such plan (or revision thereof), promulgate any such regulations unless, prior to such promulgation, such State has adopted and submitted a plan (or revision) which the Administrator determines to be in accordance with the requirements of this section.

• • • •

Applicable implementation plan

(d) For purposes of this chapter, an applicable implementation plan is the implementation plan, or most recent revision thereof, which has been approved under subsection (a) of this section or promulgated under subsection (c) of this section and which implements a national primary or secondary ambient air quality standard in a State.

* * * *

§ 1857d–1. Retention of State authority

Except as otherwise provided in sections 1857c—10(c), (e), and (f), 1857f—6a, 1857—6c(c)(4), and 1857f—11 of this title (preempting certain State regulation of moving sources) nothing in this chapter shall preclude or deny the right of any State or political subdivision thereof to adopt or enforce (1) any standard or limitation respecting emissions of air pollutants or (2) any requirement respecting control or abatement of air pollution; except that if an emission standard or limitation is in effect under an applicable implementation plan or under section 1857c—6 or section 1857c—7 of this title, such State or political subdivision may not adopt or enforce any emission standard or limitation which is less stringent than the standard or limitation under such plan or section.

* * * *

§ 1857h–5. Administrative proceedings and judicial review

* * * *

(b)(1) A petition for review of action of the Administrator in promulgating any national primary or secondary ambient air quality standard, any emission standard under section 1857c—7 of this title, any standard of performance under section 1857c—6 of this title, any standard under section 1857f—1 of this title (other than a standard required to be prescribed under section 1857f—1(b)(1) of this title), any determination under section 1857f—1(b)(5) of this title, any control or prohibition under section 1857f—6c of this title, or any standard under section 1857f—9 of this title may be filed only in the United States Court of Appeals for the District of Columbia. A petition for review of the Administrator's action in approving or promulgating any implementation plan under section 1857c—5 of this title or section 1857c—6(d) of this title, or his action under section 1857c—10(c)(2)(A), (B), or (C) of this title or under regulations thereunder, may be filed only in the United States Court of Appeals for the appropriate circuit. Any such petition shall be filed within 30 days from the date of such promulgation, approval, or action, or after such date if such petition is based solely on grounds arising after such 30th day.

(2) Action of the Administrator with respect to which review could have been obtained under paragraph (1) shall not be subject to judicial review in civil or criminal proceedings for enforcement.

APPENDIX H

Relevant provisions of the Clean Air Act, as amended by the Clean Air Act Amendments of 1977, 95 Pub.L. No. 95, 91 Stat. 685, 42 U.S.C. §§ 7410 *et seq.*

APPENDIX H

§ 7410. State implementation plans for national primary and secondary ambient air quality standards—Adoption of plan by State; submission to Administrator; content of plan; revision; new sources; indirect source review program; supplemental or intermittent control systems

(a)(1) Each State shall, after reasonable notice and public hearings, adopt and submit to the Administrator, within nine months after the promulgation of a national primary ambient air quality standard (or any revision thereof) under section 7409 of this title for any air pollutant, a plan which provides for implementation, maintenance, and enforcement of such primary standard in each air quality control region (or portion thereof) within such State. In addition, such State shall adopt and submit to the Administrator (either as a part of a plan submitted under the preceding sentence or separately) within nine months after the promulgation of a national ambient air quality secondary standard (or revision thereof), a plan which provides for implementation, maintenance, and enforcement of such secondary standard in each air quality control region (or portion thereof) within such State. Unless a separate public hearing is provided, each State shall consider its plan implementing such secondary standard at the hearing required by the first sentence of this paragraph.

(2) The Administrator shall, within four months after the date required for submission of a plan under paragraph (1), approve or disapprove such plan or each portion thereof. The Administrator shall approve such plan, or any portion thereof, if he determines that it was adopted after reasonable notice and hearing and that—

(A) except as may be provided in subparagraph (I)(i) in the case of a plan implementing a national

primary ambient air quality standard, it provides for the attainment of such primary standard as expeditiously as practicable but (subject to subsection (e) of this section) in no case later than three years from the date of approval of such plan (or any revision thereof to take account of a revised primary standard); and (ii) in the case of a plan implementing a national secondary ambient air quality standard, it specifies a reasonable time at which such secondary standard will be attained;

(B) it includes emission limitations, schedules, and timetables for compliance with such limitations, and such other measures as may be necessary to insure attainment and maintenance of such primary or secondary standard, including, but not limited to, transportation controls, air quality maintenance plans, and preconstruction review of direct sources of air pollution as provided in subparagraph (D);

(C) it includes provision for establishment and operation of appropriate devices, methods, systems, and procedures necessary to (i) monitor, compile, and analyze data on ambient air quality and, (ii) upon request, make such data available to the Administrator;

(D) it includes a program to provide for the enforcement of emission limitations and regulation of the modification, construction, and operation of any stationary source, including a permit program as required in parts C and D of this subchapter and a permit or equivalent program for any major emitting facility, within such region as necessary to assure (i) that national ambient air quality standards are achieved and maintained, and (ii) a procedure, meeting the requirements of paragraph (4), for review (prior to construction or modification) of the location of new sources to which a standard of performance will apply;

(E) it contains adequate provisions (i) prohibiting any stationary source within the State from emitting any air pollutant in amounts which will (I) prevent attainment or maintenance by any other State of any such national primary or secondary ambient air quality standard, or (II) interfere with measures required to be included in the applicable implementation plan for any other State under part C of this subchapter to prevent significant deterioration of air quality or to protect visibility, and (ii) insuring compliance with the requirements of section 7426 of this title, relating to interstate pollution abatement;

(F) it provides (i) necessary assurances that the State will have adequate personnel, funding, and authority to carry out such implementation plan; (ii) requirements for installation of equipment by owners or operators of stationary sources to monitor emissions from such sources; (iii) for periodic reports on the nature and amounts of such emissions; (iv) that such reports shall be correlated by the State agency with any emission limitations or standards established pursuant to this chapter, which reports shall be available at reasonable times for public inspection; (v) for authority comparable to that in section 7603 of this title, and adequate contingency plans to implement such authority; and (vi) requirements that the State comply with the requirements respecting State boards under section 7428 of this title;

(G) it provides, to the extent necessary and practicable, for periodic inspection and testing of motor vehicles to enforce compliance with applicable emission standards;

(H) it provides for revision, after public hearings, of such plan (i) from time to time as may be necessary to take account of revisions of such national primary

or secondary ambient air quality standard or the availability of improved or more expeditious methods of achieving such primary or secondary standard; or (ii) except as provided in paragraph (3)(C), whenever the Administrator finds on the basis of information available to him that the plan is substantially inadequate to achieve the national ambient air quality primary or secondary standard which it implements or to otherwise comply with any additional requirements established under the Clean Air Act Amendments of 1977;

(I) it provides that after June 30, 1979, no major stationary source shall be constructed or modified in any nonattainment area (as defined in section 7501 (2) of this title) to which such plan applies, if the emissions from such facility will cause or contribute to concentrations of any pollutant for which a national ambient air quality standard is exceeded in such area, unless, as of the time of application for a permit for such construction or modification, such plan meets the requirements of part D of this subchapter (relating to nonattainment areas);

(J) it meets the requirements of section 7421 of this title (relating to consultation), section 7427 of this title (relating to public notification), part C of this subchapter (relating to prevention of significant deterioration of air quality and visibility protection); and

(K) it requires the owner or operator of each major stationary source to pay to the permitting authority as a condition of any permit required under this chapter a fee sufficient to cover—

(i) the reasonable costs of reviewing and acting upon any application for such a permit, and

(ii) if the owner or operator receives a permit for such source, whether before or after August

7, 1977, the reasonable costs (incurred after August 7, 1977) of implementing and enforcing the terms and conditions of any such permit (not including any court costs or other costs associated with any enforcement action).

(3)(A) The Administrator shall approve any revision of an implementation plan applicable to an air quality control region if he determines that it meets the requirements of paragraph (2) and has been adopted by the State after reasonable notice and public hearings.

* * * *

Preparation and publication by Administrator of proposed regulations setting forth implementation plan; transportation regulations study and report; parking surcharge; suspension authority; plan implementation

(c)(1) The Administrator shall, after consideration of any State hearing record, promptly prepare and publish proposed regulations setting forth an implementation plan, or portion thereof, for a State if—

(A) the State fails to submit an implementation plan which meets the requirements of this section.

(B) the plan, or any portion thereof, submitted for such State is determined by the Administrator not to be in accordance with the requirements of this section, or

(C) the State fails, within 60 days after notification by the Administrator or such longer period as he may prescribe, to revise an implementation plan as required pursuant to a provision of its plan referred to in subsection (a)(2)(H) of this section.

If such State held no public hearing associated with respect to such plan (or revision thereof), the Administrator

shall provide opportunity for such hearing within such State on any proposed regulation. The Administrator shall, within six months after the date required for submission of such plan (or revision thereof), promulgate any such regulations unless, prior to such promulgation, such State has adopted and submitted a plan (or revision) which the Administrator determines to be in accordance with the requirements of this section. Notwithstanding the preceding sentence, any portion of a plan relating to any measure described in the first sentence of section 7421 of this title (relating to consultation) or the consultation process required under such section 7421 shall not be required to be promulgated before the date eight months after such date required for submission.

* * * *

Applicable implementation plan

(d) For purposes of this chapter, an applicable implementation plan is the implementation plan, or most recent revision thereof, which has been approved under subsection (a) of this section or promulgated under subsection (c) of this section and which implements the requirements of this section.

* * * *

§ 7416. Retention of State authority

Except as otherwise provided in sections 119(c), (e), and (f) (as in effect before August 7, 1977), 7543, 7545(c)(4), and 7573 of this title (preempting certain State regulation of moving sources) nothing in this chapter shall preclude or deny the right of any State or political subdivision thereof to adopt or enforce (1) any standard or limitation respecting emissions of air pollutants or (2) any requirement respecting control or abatement of air pollution; except that if an emission standard or limitation is in effect under an applicable implementation plan or under section 7411

or section 7412 of this title, such State or political subdivision may not adopt or enforce any emission standard or limitation which is less stringent than the standard or limitation under such plan or section.

* * * *

§ 7607. Administrative proceedings and judicial review

* * * *

Judicial review

(b)(1) A petition for review of action of the Administrator in promulgating any national primary or secondary ambient air quality standard, any emission standard or requirement under section 7412 of this title, any standard of performance or requirement under section 7411 of this title, any standard under section 7521 of this title (other than a standard required to be prescribed under section 7521(b)(1) of this title) any determination under section 7521(b)(5) of this title, any control or prohibtion under section 7545 of this title, any standard under section 7571 of this title, any rule issued under section 7413, 7419, or 7420 of this title, or any other nationally applicable regulations promulgated, or final action taken, by the Administrator under this chapter [2] may be filed only in the United States Court of Appeals for the District of Columbia. A petition for review of the Administrator's action in approving or promulgating any implementation plan under section 7410 of this title or section 7411(d) of this title, any order under section 7411(j) of this title, under section 7412(c) of this title, under section 7413(d) of this title, under section 7419 of this title, or under section 7420 of this title, or his action under section 119(c)(2)(A), (B), or (C) (as in effect before August 7, 1977) or under regulations thereunder, or any other final action of the Administrator under this chapter (including any denial or disapproval by the

Administrator under subchapter I of this chapter) which is locally or regionally applicable may be filed only in the United States Court of Appeals for the appropriate circuit. Notwithstanding the preceding sentence a petition for review of any action referred to in such sentence may be filed only in the United States Court of Appeals for the District of Columbia if such action is based on a determination of nationwide scope or effect and if in taking such action the Administrator finds and publishes that such action is based on such a determination. Any petition for review under this subsection shall be filed within sixty days from the date notice of such promulgation, approval, or action appears in the Federal Register, except that if such petition is based solely on grounds arising after such sixtieth day, then any petition for review under this subsection shall be filed within sixty days after such grounds arise.

(2) Action of the Administrator with respect to which review could have been obtained under paragraph (1) shall not be subject to judicial review in civil or criminal proceedings for enforcement.

* * * *

Rulemaking

(d)(1) This subsection applies to—

* * * *

(3) In the case of any rule to which this subsection applies, notice of proposed rulemaking shall be published in the Federal Register, as provided under section 553(b) of Title 5, shall be accompanied by a statement of its basis and purpose and shall specify the period available for public comment (hereinafter referred to as the "comment period"). The notice of proposed rulemaking shall also state the docket number, the location or locations of the docket, and the times it will be open to public inspection.

The statement of basis and purpose shall include a summary of—

(A) the factual data on which the proposed rule is based;

(B) the methodology used in obtaining the data and in analyzing the data; and

(C) the major legal interpretations and policy considerations underlying the proposed rule.

The statement shall also set forth or summarize and provide a reference to any pertinent findings, recommendations, and comments by the Scientific Review Committee established under section 7409(d) of this title and the National Academy of Sciences, and, if the proposal differs in any important respect from any of these recommendations, an explanation of the reasons for such differences. All data, information, and documents referred to in this paragraph on which the proposed rule relies shall be included in the docket on the date of publication of the proposed rule.

• • • •

(6)(A) The promulgated rule shall be accompanied by (i) a statement of basis and purpose like that referred to in paragraph (3) with respect to a proposed rule and (ii) an explanation of the reasons for any major changes in the promulgated rule from the proposed rule.

(B) The promulgated rule shall also be accompanied by a response to each of the significant comments, criticisms, and new data submitted in written or oral presentations during the comment period.

(C) The promulgated rule may not be based (in part or whole) on any information or data which has not been placed in the docket as of the date of such promulgation.

* * * *

(9) In the case of review of any action of the Administrator to which this subsection applies, the court may reverse any such action found to be—

(A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law;

(B) contrary to constitutional right, power, privilege, or immunity;

(C) in excess of statutory jurisdiction, authority, or limitations, or short of statutory right; or

(D) without observance of procedure required by law, if (i) such failure to observe such procedure is arbitrary or capricious, (ii) the requirement of paragraph (7)(B) has been met, and (iii) the condition of the last sentence of paragraph (8) is met.

* * * *

§ 7620. Standardized air quality modeling

Conferences

(a) Not later than six months after August 7, 1977, and at least every three years thereafter, the Administrator shall conduct a conference on air quality modeling. In conducting such conference, special attention shall be given to appropriate modeling necessary for carrying out part C of subchapter I of this chapter (relating to prevention of significant deterioration of air quality).

Conferees

(b) The conference conducted under this section shall provide for participation by the National Academy of Sciences, representatives of State and local air pollution control agencies, and appropriate Federal agencies, including the National Science Foundation; the National Oceanic and Atmospheric Administration, and the National Bureau of Standards.

• • • •

APPENDIX I

Relevant provisions of the regulations being reviewed, 40 C.F.R. §§ 52.1875, 1881 and 1882 (1977)

APPENDIX I

4. 40 C.F.R. §§ 52.1875, 1881 and 1882 (1977).

§ 52.1875 Attainment dates for national standards.

(a) The following table presents the latest dates by which the national standards are to be attained. These dates reflect the information presented in Ohio's plan, except where noted.

Air quality control region	Pollutant						
	Particulate matter		Sulfur oxides		Nitrogen dioxide	Carbon monoxide	Photochemical oxidants (hydrocarbons)
	Primary	Secondary	Primary	Secondary			
Greater Metropolitan Cleveland Intrastate	h	h	f	f	e	e	a
Huntington (West Virginia)-Ashland (Kentucky)-Portsmouth-Ironton (Ohio) Interstate	h	h	f	f	e	e	e
Mansfield-Marion Intrastate	h	h	f	f	e	e	e
Metropolitan Cincinnati Interstate	h	h	f	f	e	a	May 31, 1975
Metropolitan Columbus Intrastate	h	h	f	f	e	e	a
Metropolitan Dayton Intrastate	h	h	f	f	e	e	May 31, 1975
Metropolitan Toledo Interstate	h	h	f	f	e	e	May 31, 1975
Northwest Ohio Intrastate	h	h	f	f	e	e	e
Northwest Pennsylvania-Youngstown Interstate	h	h	f	f	e	e	e
Parkersburg (West Virginia)-Marietta (Ohio) Interstate	h	h	f	f	e	e	e
Sandusky Intrastate	h	h	f	f	e	e	e
Steubenville-Weirton-Wheeling Interstate	h	h	f	f	e	e	e
Wilmington-Chillicothe-Logan Intrastate	h	h	e	e	e	e	e
Zanesville-Cambridge Intrastate	h	h	f	f	e	e	e

NOTE: Dates or footnotes which are underlined are prescribed by the Administrator because the plan did not provide a specific date or the date provided was not acceptable.

a. July 1975.

b. 5 years from plan approval or promulgation.

c. 18-month extension granted.

d. Air quality levels presently below primary standards.

e. Air quality levels presently below secondary standards.

f. August 27, 1979, except for the following companies which are subject to an attainment date of June 17, 1980:

Ashland Oil, Inc.; Youngstown Sheet & Tube Co.; PPG Industries, Icn.; Wheeling-Pittsburgh Steel Corp.; Pittsburgh-Candield Corporation; The Timken Company; The Sun Oil Co.; Sheller-Globe Corp.; The B. F. Goodrich Company; Phillips Petroleum Co.; Shell Oil Co.; Federal Paper Board Co., Icn.; The Firestone Tire & Rubber Co.; Republic Steel Corp.; Chase Bag Co.; White-Westinghouse Corp.; U.S. Steel Corp; Interlake, Inc.; Austin Powder Co.; Diamond Crystal Salt Co.; The Goodyear Tire & Rubber Co.; The Gulf Oil Co.; The Standard Oil Co.; Champion International Corp.; Coppers Co., Inc.; General Motors Corp; E.I. duPont de Nemours and Co.; Coulton Chemical Corp; Allied Chemical Corp, Specialty Chemicals Division; The Hoover Co.; Aluminum Co. of America; Ohio Greenhouse Assoc.; Armco Steel Corp.; Buckeye Power, Inc.; Cincinnati Gas and Electric; Cleveland Electric Illuminating Co.; Columbus and Southern Ohio Electric; Dayton Power and Light Co.; Columbus and Southern Ohio Electric; Dayton Power and Light Co.; Duquesne Light Co.; Ohio Edison Co.; Ohio Electric Co.; Ohio Power Co.; Pennsylvania Power Co.; Toledo Edison Co.

g. Notwithstanding the above, the following Ohio counties have already met the primary and secondary standards: Ashland, Brown, Carroll, Champaign, Clinton, Darke, Defiance, Fayette, Fulton, Geauga, Guernsy, Hardin, Harrison, Highland, Hocking Holmes, Jackson, Knox, Logan, Madison, Monroe, Morrow, Noble, Perry, Portage, Preble, Putnam, Shelby, Union, Van Wert, Warren, Williams, Wyandot.

h. Ppr. 15, 1977.

(b) The requirements of 40 CFR Part 51 are not met by Revised AP-5-04, AP-7-03 and EP-32-03 (as it pertains to attainment dates for nitrogen oxides, carbon monoxide, hydrocarbon and photochemical oxidant standards in Ohio). [37 FR 10886, May 31, 1972, as amended at 37 FR 15088, July 27, 1972, 37 FR 19808, Sept. 22, 1972; 38 FR 7328, Mar. 20, 1973; 38 FR 12702, May 14, 1973; 38 FR 12921, May 17, 1973; 38 FR 30974, Nov. 8, 1973, 39 FR 16347, May 8, 1974; 41 FR 36327, Aug. 27, 1976; 41 FR 41692, Sept. 23, 1976; 42 FR 27589, May 31, 1977]

§ 52.1881 Control strategy: Sulfur oxides (sulfur dioxide).

(a) The requirements of § 51.13 of this chapter are not met because the Ohio plan does not provide for attainment and maintenance of the national standards for sulfur oxides (sulfur dioxide).

(b) Regulations for the control of sulfur dioxide in the State of Ohio.

§ 52.1882 Compliance schedules.

(a) Federal compliance schedules.

(1) Except as provided in subparagraph (5) of this paragraph, the owner or operator of any process equipment subject to applicable subparagraphs of § 52.1881 (b), shall comply with the compliance schedule in paragraph (a) (2) of this section.

(2) Any owner or operator of any process equipment subject to applicable paragraphs of § 52.1881 (b) of this Chapter shall take the following actions to comply with the requirements of said regulation with respect to that source no later than the date specified.

(i) 8 weeks from the date of promulgation — Submit preliminary control plans to the Administrator.

(ii) 25 weeks from the date of promulgation — Submit final control plan to the administrator.

(iii) 34 weeks from the date of promulgation — Award contracts for emissions control systems or process modification, or issue orders for purchase of component parts to accomplish emission eontrol or process modification and notify the Administrator in writing that such action was taken.

(vi) 52 weeks from the date of promulgation — Initiate on-site construction of installation of emission control equipment or process change and notify the Administrator in writing that such action was taken.

(v) 139 weeks from the date of promulgation — Complete construction or installation of emission control equipment or process change and notify the Administrator in writing that such action was taken.

(vi) 154 weeks from the date of promulgation — Complete shakedown operations and performance test on source, submit

performance test results to the Administrator and achieve final compliance with § 52.1881 (b) of this chapter, as applicable.

(3) Except as provided in subparagraph (5) of this paragraph, the owner or operator of any stack venting any fossil fuel-fired steam generating unit(s) subject to § 52.1881 (b) of this chapter shall comply the spplicable compliance schedule in paragraph (a) (4) of this section.

(4) (i) The owner or operator of any stack venting any fossil fuel-fired steam generating unit(s) subject ot § 52.1881 (b) of this chapter who elects to comply with an applicable optional emission limitation specified in § 52.1881 (b) of this chapter, shall notify the Administrator no later than eight weeks after the date of this promulgation of the specific emission limitations selected. Failure to select applicable optional emission limitations shall result in the facility being subject to the single uniform emission limitation for all stacks at that facility specified in § 52.1881 (b). Notice received later than eight weeks after the date of promulgation shall be invalid.

(ii) The owner or operator of any fossil fuel-fired steam generating unit(s) subject to applicable subparagraphs of § 52.1881 (b) of this chapter shall notify the Administrator no later than eight weeks after the date of promulgation of his intent to utilize either low-sulfur fuel including blended or washed coal or flue gas desulfurization to comply with the requirements of said regulation.

(iii) Any owner or operator of any stack venting any fossil fuel-fired steam generating unit(s) subject to applicable subparagraphs of § 52.1881 (b) of this chapter who elects to utilize low-sulfur fuel including blended or washed coal to comply with the requirements of said regulation shall take the following actions with respect to that source no later than the date specified:

(a) 8 weeks from the date of promulgation — Submit to the Administrator a projection for 10 years of the amount of fuel by types that will be substantially adequate to enable compliance with § 52.1881 (b) of this chapter, as applicable.

(b) 32 weeks from the date of promulgation — Submit data demonstrating the availability of the fuel meeting the requirements projected in subparagraph (a) to the Administrator.

(c) 36 weeks from the date of promulgation — Submit a statement to the Administrator as to whether boiler modifications will or will not be required. If modifications will be required, submit plans for such modifications.

(d) 50 weeks from the date of promulgation — Let contracts for necessary boiler modifications, if applicable, and notify the Administrator in writing that such action was taken.

(e) 60 weeks from the date of promulgation — Initiate on-site modifications, if applicable, and notify the Administrator in writing that such action was taken.

(f) 118 weeks from the date of promulgation — Complete on-site modification, if applicable, and notify the Administrator in writing that such action was taken.

(g) 122 weeks from the date of promulgation — Achieve final compliance with the emission limitation of § 52.1881 (b) of this chapter, as applicable, and notify the Administrator in writing that such action was taken.

(iv) Any owner or operator of any stack venting any fossil fuel-fired steam generating unit(s) subject to applicable subparagraphs of § 52.1881 (b) of this chapter to elects to utilize flue gas desulfurization to comply with the requirements of said regulations shall take the following actions with respect to the source no later than the date specified.

(a) 17 weeks from the date of promulgation — Let necessary contracts for construction and notify the Administrator in writing that such action was taken.

(b) 61 weeks from the date of promulgation — Initiate on-site construction and notify the Administrator in writing that such action was taken.

(c) 145 weeks from the date of promulgation — Complete on-site construction and notify the Administrator in writing what such action was taken.

(d) 156 weeks from the date of promulgation — Complete shakedown operations and performance test on source, submit

performance test results to the Administrator and achieve final compliance with § 52.1881 (b) of this chapter, as applicable.

(5) (i) None of the preceding subparagraphs of this paragraph shall apply to any owner or operator of a source which is presently in compliance with the applicable subparagraphs of § 52.1881 (b) of this chapter.

(ii) Any owner or operator of a source capable of emitting 100 tons of sulfur dioxide per year from all stacks at any facility who is presently in compliance with the applicable subparagraphs of § 52.1881 (b) of this chapter shall so certify to the Administrator by four weeks from the date of promulgation.

(iii) Any owner or operator subject to a compliance schedule in this paragraph who elects to achieve compliance by means not covered by this paragraph may submit to the Administrator no later than six weeks from the date of promulgation a proposed alternative compliance schedule. For process equipment subject to applicable subparagraphs of 52.1881 (b) of this chapter no such compliance schedule may provide for final compliance after the final compliance date in subparagraph (2) of this paragraph. For any stack venting any fossil fuel-fired steam generating unit(s) subject to applicable subparagraphs of § 52.1881 (b) of this chapter, which will utilize low-sulfur fuel including blended or washed coal to comply with the requirements of said regulations, no such compliance schedule may provide for final compliance after final compliance date in

subparagraph (4) (iii) of this paragraph. For any stack venting any fossil fuel-fired steam generating unit(s) subject to applicable subparagraphs of § 52.1881 (b) of this chapter, which will utilize flue gas desulfurization to comply with the requirements of said regulations, no such compliance schedule may provide for final compliance after the final compliance date in subparagraph (4) (iv) of this paragraph.

(iv) Any owner or operator of any process equipment subject to applicable subparagraphs of § 52.1881 (b) of this chapter who submits an alternative compliance schedule pursuant to § 52.1882 (a) (5) (iii) of this chapter shall remain subject to the provisions of § 52.1882 (a) (2) of this chapter until the alternative schedule is approved by the Administrator.

(v) Any owner or operator of any stack venting any fossil fuel-fired steam generating unit(s) subject to applicable subparagraphs of § 52.1881 (b) of this chapter who submits an alternative compliance schedule pursuant to § 52.1882 (a) (5) (iii) of this chapter shall remain subject to the provisions of § 52.1882 (a) (4) of this chapter until the alternative schedule is approved by the Administrator.

(6) Nothing in this paragraph shall preclude the Administrator from promulgating a separate schedule for any source to which the application of the compliance schedules in paragraphs (d) (2), or (4) of this section fails to satisfy the requirements of § 52.15 (b) and (c) of this Chapter.

(b) Federal compliance schedule for petitioners in *Buckeye Power, Inc. et al v. USEPA*, No. 76-2090 et al.

(1) Except as provided in paragraph (b) (5) of this section, the owner or operator of any process equipment subject to applicable subparagraphs of § 52.1881 (b) shall comply with the compliance schedule in paragraph (a) (2) of this section.

(2) Any owner or operator of any process equipment subject to applicable paragraphs of § 52.1881 (b) of the Chapter shall take the following actions to comply with the requirements of said regulation with respect to that source no later than the date specified.

(i) 8 weeks from June 17, 1977: Submit preliminary control plans to the Administrator.

(ii) 25 weeks from June 17, 1977: Submit final control plan to the Administrator.

(iii) 34 weeks from June 17, 1977: Award contracts for emissions control systems or process modification, or issue orders for purchase of component parts to accomplish emission control or process modification and notify the Administrator in writing that such action was taken.

(iv) 52 weeks from June 17, 1977: Initiate on-site construction or installation of emission control equipment or process change and notify the Administrator in writing that such action was taken.

(v) 139 weeks from June 17, 1977: Complete construction or installation of emission control

equipment or process change and notify the Administrator in writing that such action was taken.

(vi) 154 weeks from June 17, 1977: Complete shakedown operations and performance test on source, submit performance test results to the Administrator and achieve final compliance with § 52.1881 (b) of this chapter, as applicable.

(3) Except as provided in subparagraph (5) of this paragraph, the owner or operator of any stack venting any fossil fuel-fired steam generating unit(s) subject to § 52.1881 (b) of this chapter shall comply with the applicable compliance schedule in paragraph (a) (4) of this section.

(4) (i) The Owner or operator of any stack venting any fossel fuel-fired steam generating unit(s) or process subject to § 52.1881 (b) of this chapter who elects to comply with an applicable optional emission limitation specified in § 52.1881 (b) of this chapter, shall notify the Administrator no later than 17 weeks after June 17, 1977 of the specific emission limitations selected. Failure to select applicable optional emission limitations shall result in the facility being subject to the single uniform emission limitation for all stacks at that facility specified in § 52.1881 (b). Notice received later than 17 weeks after June 17, 1977 shall be invalid.

(ii) The owner or operator of any fossil fuel-fired steam generating unit(s) subject to applicable subparagraphs of § 52.1881 (b) of this chapter shall notify the Administrator no later

than 17 weeks after June 17, 1977 of his intent to utilize either low-sulfur fuel including blended or washed coal or flue gas desulfurization to comply with the requirements of said regulation.

(iii) Any owner or operator of any stack venting any fossil fuel-fired steam generating unit(s) subject to applicable subparagraphs of § 52.1881 (b) of this chapter who elects to utilize low sulfur fuel including blended or washed coal to comply with the requirements of said regulation shall take the following actions with respect to that source no later than the date specified:

(A) 17 weeks after June 17, 1977: Submit to the Administrator a projection for ten years of the amount of fuel by types that will be substantially adequate to enable compliance with § 52.1881 (b) of this chapter, as applicable.

(B) 32 weeks from June 17, 1977: Submit data demonstrating the availability of the fuel meeting the requirements projected in subparagraph (a) to the Administrator.

(C) 36 weeks after June 17, 1977: Submit a statement to the Administrator as to whether boiler modifications will or will not be required. If modifications will be required, submit plans for such modifications.

(D) 50 weeks from June 17, 1977: Let contracts for necessary boiler modifications, if applicable, and notify the Administrator in writing that such action was taken.

(E) 60 weeks after June 17, 1977: Initiate on-site modifications, if applicable, and notify the Administrator in writing that such action was taken.

(F) 118 weeks from June 17, 1977: Complete on-site modification, if applicable, and notify the Administrator in writing that such action was taken.

(G) 122 weeks from June 17, 1977: Achieve final compliance with the emission limitation of § 52.1881 (b) of this chapter, as applicable, and notify the Administrator in writing that such action was taken.

(iv) Any owner or operator of any stack venting any fossil fuel-fired steam generating unit(s) subject to applicable subparagraphs of § 52.1881 (b) of this chapter who elects to utilize flue gas desulfurization to comply with the requirements of said regulations shall take the following actions with respect to the source no later than the date specified.

(A) 17 weeks from June 17, 1977: Let necessary contracts for construction and notify the Administrator in writing that such action was taken.

(B) 61 weeks from June 17, 1977: Initiate on-site construction and notify the Administrator in writing that such action was taken.

(C) 145 weeks from June 17, 1977: Complete on-site construction and notify the Administrator in writing that such action was taken.

(D) 156 weeks from June 17, 1977: Complete shakedown operations and performance test on source, submit performance test on source, submit performance test results to the Administrator and achieve final compliance with § 52.1881 (b) of this chapter, as applicable.

(5) (i) None of the preceding subparagraphs of this paragraph shall apply to any owner or operator of a source which is presently in compliance with the applicable subparagraphs of § 52.1881 (b) of this chapter.

(ii) Any owner or operator of a source capable of emitting 100 tons of sulfur dioxide per year from all stacks at any facility who is presently in compliance with the applicable subparagraphs of § 52.1881 (b) of this chapter shall so certify to the Administrator by four weeks from June 17, 1977.

(iii) Any owner or operator subject to a compliance schedule in this paragraph who elects to achieve compliance by means not covered by this paragraph may submit to the Administrator no later than six weeks from June 17, 1977, a proposed alternative compliance schedule. For process equipment subject to applicable subparagraphs of § 52.1881 (b) of this chapter no such compliance schedule may provide for final compliance after the final compliance date in subparagraph (2) of this paragraph. For any stack venting any fossil fuel-fired steam-generating unit(s) subject to applicable subparagraphs of § 52.1881 (b) of this chapter,

which will utilize low-sulfur fuel including blended or washed coal to comply with the requirements of said regulations, no such compliance schedule may provide for final compliance after final compliance date in subparagraph (4) (iii) of this paragraph. For any stack venting any fossil fuel-fired steam-generating unit(s) subject to applicable subparagraphs of § 52.1881 (b) of this chapter, which will utilize flue gas desulfurization to comply with the requirements of said regulations, no such compliance schedule may provide for final compliance after the final compliance date in subparagraph (4) (iv) of this paragraph.

(iv) Any owner or operator of any process equipment subject to applicable subparagraphs of § 52.1881 (b) of this chapter who submits an alternative compliance schedule pursuant to § 52.1882 (c) (5) (iii) of this chapter shall remain subject to the provisions of § 52.1882 (b) (2) of this chapter until the alternative schedule is approved by the Administrator.

(v) Any owner or operator of any stack venting any fossil fuel-fired steam-generating unit(s) subject to applicable subparagraphs of § 52.1881 (b) of this chapter who submits an alternative compliance schedule pursuant to § 52.1882 (b) (5) (iii) of this chapter shall remain subject to the provisions of § 52.1882 (B) (4) of this chapter until the alternative schedule is approved by the Administrator.

(6) Nothing in this paragraph shall preclude the Administrator from promulgating a separate schedule for any source to which the application of the compliance schedules in paragraphs (d) (2) or (4) of this section fails to satisfy the requirements of § 51.15 (b) and (c) of this chapter.

[41 FR 36339, Aug. 27, 1976, as amended at 42 FR 27592, May 31, 1977]

Supreme Court, U. S.
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Nos. 78-535 and 78-536

In the Supreme Court of the United States

OCTOBER TERM, 1978

SHELL OIL COMPANY, PETITIONER

v.

ENVIRONMENTAL PROTECTION AGENCY, ET AL.

CINCINNATI GAS & ELECTRIC CO., ET AL., PETITIONERS

v.

ENVIRONMENTAL PROTECTION AGENCY, ET AL.

ON PETITIONS FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE SIXTH CIRCUIT

BRIEF FOR THE FEDERAL RESPONDENTS IN OPPOSITION

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OPINION BELOW

The opinion of the court of appeals (78-535 Pet. App. 1a-12a; 78-536 Pet. App. 1a-12a) is reported at 578 F.2d 660.

JURISDICTION

The judgment of the court of appeals was entered on June 29, 1978. The petitions for a writ of certiorari were filed on September 27, 1978. The jurisdiction of this Court is invoked under 28 U.S.C. 1254(1).

QUESTIONS PRESENTED

1. Whether the court of appeals adequately reviewed EPA's plan for the control of air pollution from rural area sources.

2. Whether a remand is required to permit EPA to give additional consideration to petitioner Shell's claim that allowable sulfur dioxide emissions should be expressed in pounds-per-hour rather than in the terms adopted by EPA (No. 78-535).

STATEMENT

In the Clean Air Amendments of 1970, Pub. L. No. 91-604, 84 Stat. 1676, 42 U.S.C. (1970 ed.) 1857 *et seq.*,[1] Congress directed each state to establish a plan for the control of air pollution by 1972. See *Train* v. *Natural Resources Defense Council*, 421 U.S. 60 (1975). The State of Ohio, however, failed to develop

[1] The Clean Air Act (formerly 42 U.S.C. (1970 ed.) 1857 *et seq.*) is now 42 U.S.C. 7401 *et seq.* See Clean Air Act Amendments of 1977, Pub. L. No. 95-95, 91 Stat. 685.

a plan for the control of sulfur dioxide pollution and, accordingly, as required by Section 110(c), 42 U.S.C. 7410(c), EPA published its proposed plan on November 10, 1975 (40 Fed. Reg. 52410 (1975)). At the same time it released for public review and comment a two-volume technical support document of approximately 900 pages, setting forth the scientific basis and rationale for the proposed plan. EPA then held five days of public hearings in four cities in Ohio, and solicited written comments on the proposed plan until January 23, 1976. In all, more than 230 comments and associated exhibits were submitted, resulting in an administrative record of several thousand pages.

As a result of these comments and others presented at the public hearings, EPA made certain modifications in the proposed plan. Among these was a change in the method of determining emission limitations for pollution sources located in rural areas with hilly terrain. EPA made an adjustment to its Second Maximum 24-Hour Dispersion Model ("MAX-24"), the mathematical computer model used to simulate pollution from isolated point sources in rural areas. The result was the Second Maximum 24-Hour Dispersion Model with Terrain Adjustments ("MAXT-24"), which includes an adjustment designed to compensate for an overprediction of sulfur dioxide emissions that had been revealed in validation studies comparing the predictions of the original model against actual air quality monitor data (Pet. App. 8a-10a).[2] On August

[2] "Pet. App." refers to the appendix to the petition in No. 78-535.

27, 1976, the Administrator promulgated the control plan for sulfur dioxide emissions in Ohio (41 Fed. Reg. 36324 (1976)) and released a second technical support document of approximately 1,260 pages, which evaluated the comments and explained the changes that had been made in the plan in response to comments (*EPA Final Technical Support Document* (August 1976)).

Petitioners and others sought judicial review of the plan in the court of appeals under Section 307(b)(1), 42 U.S.C. 7606(b)(1). On November 14, 1976, after a hearing and upon consideration of motions to stay enforcement of the plan, the court sua sponte ordered that the administrative record be reopened and that those seeking review be allowed 60 days to comment on the plan as promulgated. See Pet. App. 23a-25a.

Each of the petitioners submitted written comments, and on May 27, 1977, EPA completed its consideration of the comments and filed with the court of appeals a memorandum accompanied by a third technical support document, *EPA Supplemental Technical Support Document: Sulfur Dioxide Control Strategy for the State of Ohio* (May 1977). Thirty-two companies, including petitioners, again sought judicial review.

The court of appeals issued two decisions. Its first decision, issued on February 13, 1978, concerned "general issues" applicable to all the companies (Pet. App. 18a). The court of appeals held that the EPA hearings on the control plan were procedurally adequate, and it approved EPA's use of the Real-Time

Air-Quality-Simulation Model ("RAM") to set emissions standards for pollution sources in urban areas. Use of the model was, the court held, a "rational choice" made "well within the [agency's] discretion" (Pet. App. 44a).

The court of appeals noted:

> Our standard of review of the actions of United States EPA is whether or not the action of the agency is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." Clean Air Act Amendments of 1977, Pub. L. No. 95-95, Sec. 305(a), 91 Stat. 775 * * *. Thus, we are required to affirm if there is a rational basis for the agency action and we are not "empowered to substitute [our] judgment for that of the agency." *Citizens to Preserve Overton Park* v. *Volpe*, 401 U.S. 402, 416 (1971).

Pet. App. 37a.[3]

In its second decision, issued on June 29, 1978, the court of appeals reviewed the methods EPA used to set emission limitations for pollution sources in rural areas (Pet. App. 1a-12a). The court stated that the MAXT-24 model "strongly resembles" the RAM model in certain respects, that the court's comments on the RAM model in the first decision "are largely applicable to EPA's adoption of MAXT-24," and that, with one exception, "EPA's adoption and use of the MAXT-24 model is not arbitrary or capricious and, like the

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[3] On October 16, 1978, this Court denied the petitions for certiorari to review the February 13, 1978, decision. *Timken Co.* v. *EPA*, No. 78-83, and *Cleveland Electric Illuminating Co.* v. *EPA*, No. 78-84.

use of the RAM model, must be affirmed by this court" (Pet. App. 3a-4a).

The court noted that none of the petitions before it "seriously disputes the general validity of the MAXT-24 model" (Pet. App. 4a). Rather, petitioners' complaints focused on applications of the model to rural pollution sources under two specific conditions (*ibid.*). The court of appeals first reviewed the method EPA followed for determining pollution dispersion in unstable weather conditions (Class A Conditions) and concluded that EPA had not developed a sufficient record to support its method (Pet. App. 4a-8a). The court remanded the issue to EPA for further consideration (Pet. App. 8a).

The court next reviewed EPA's adjustment to the model for determining emission limitations for sources situated in hilly terrain and affirmed EPA's decision (Pet. App. 8a-11a). As noted earlier (page 3, *supra*), EPA had adjusted the basic rural MAX-24 model in response to comments on its originally proposed emission control plan. During the additional comment period ordered by the court of appeals, petitioners objected to EPA's terrain adjustment method and proposed a different one. While the court of appeals found that "the record does not establish conclusively" that the EPA method would satisfactorily solve the problem posed, the court found that, on the record before it, the "present terrain adjustment" in the model was neither arbitrary nor capricious (Pet. App. 11a). Finally, the court of appeals reviewed and affirmed the agency's decision to express emission

limitations in pounds of sulfur dioxide per MBTU (Million British Thermal Units) of heat input rather than, as Shell had suggested, in pounds emitted per hour. The court found this to be a policy decision within the agency's administrative discretion and consistent with the requirement of the Act that the plan "insure attainment and maintenance" of the national ambient air quality standards. Section 110(a)(2), 42 U.S.C. 7410(a)(2) (Pet. App. 12a).

ARGUMENT

The decision of the court of appeals is correct, does not conflict with any decision of this Court or other courts of appeals, and does not warrant review.

1. Petitioners contend that EPA and the court of appeals did not adequately consider certain objections to the use of the MAXT-24 model to set sulfur dioxide emission limitations for plants in rural areas. The record shows otherwise. EPA extensively explained and justified its use of the basic MAX-24 model and its modification, the MAXT-24, and the court of appeals, considering all of petitioners' objections, correctly concluded that, with the exception of the model's application to plume dispersion in unstable weather conditions, "EPA's adoption and use of the MAXT-24 model is not arbitrary or capricious" (Pet. App. 4a). See *Citizens to Preserve Overton Park, Inc.* v. *Volpe*, 401 U.S. 402, 416 (1971).

a. Petitioners Shell (78-535 Pet. 6-11) and the utilities (78-536 Pet. 5-13) specifically contend that the court of appeals did not adequately consider

EPA's adjustment of its model to account for plume dispersion in hilly terrain. Shell (78-535 Pet. 7-9) generally faults the court for failing to agree with Shell that EPA's response to Shell's objections to the adjustment was "nonresponsive" and that the adjustment itself was "unsupported." The utilities attack the court for failing to remand the terrain adjustment issue in light of an alleged concession by EPA that the "underlying rationale" for the adjustment was "erroneous" (78-536 Pet. 12). In fact, EPA articulated a rationale for its terrain adjustment and did not thereafter concede that the rationale was erroneous. In response to comments on the original MAX-24 model, EPA determined that the model had tended to overstate observed ground-level pollution concentrations for sources situated in hilly terrain. EPA then made a mathematical adjustment to the model to bring it into conformity with the data used in the original validation studies of the MAX-24 model. This adjustment was explained by EPA (*Supplemental Technical Support Document, supra*, at 55). The concession referred to by the petitioner utilities was not a concession that the rationale for the adjustment was erroneous, *i.e.*, that the adjustment did not bring the model into conformity with the data used in the original validation studies. It was simply a correction of a statement in the technical support document that had implied that additional validation studies had been done of the model after the terrain adjustment was made (see Pet. App. 11a). Petitioners' own suggestion for a different terrain adjustment

was considered by EPA and rejected because it was supported by no data indicating that it would be a superior method of adjusting for hilly terrain. *Supplemental Technical Support Document*, *supra*, at 55. The court of appeals correctly concluded (Pet. App. 11a) that EPA was not obliged to forego using its own solution of the terrain problem in the absence of evidence that another solution would prove to be more reliable.

b. In No. 78-535, petitioner Shell states (Pet. 5, 12) that certain monitor data measured at particular points in the vicinity of its chemical manufacturing plant in rural southeastern Ohio show that there is no need for reducing the sulfur dioxide emissions from the plant. Shell contends (Pet. 5-6, 10, 12) that EPA's MAXT-24 model could be altered, by expanding the form of the Gaussian plume equation incorporated in the model, to predict emissions in accordance with those monitor data, and that both EPA and the court of appeals failed to give adequate consideration to this objection to the MAXT-24 model. This contention is without merit.

The basic rural model was tested in validation studies using data from several plants. Both it and the terrain-adjusted model were, like all such models, intended to serve as a consistent and efficient means of setting emissions standards for a large number of facilities. Shell's argument for revising the Gaussian plume equation used in the model is essentially an argument that its plant should have its own model, drawn up in accordance with monitor data for the

plant that may or may not be reliable.[4] In response to objections made during the additional comment period ordered by the court of appeals, EPA explained at length the reasons why monitor data alone cannot be relied on to determine whether or not pollution sources must reduce emissions to insure attainment and maintenance of the national ambient air quality standards. *Supplemental Technical Support Document, supra,* at 4-16. The court of appeals, therefore, did not err in finding "no merit to objections based on failure to calibrate the MAXT-24 model (or failure to reject its results because of claims of overprediction as demonstrated by some monitor readings)" (Pet. App. 11a-12a).

c. In sum, the court of appeals considered petitioners' technical objections to the MAXT-24 model and effectively determined that EPA's position on those matters did not constitute a "clear error of judgment." *Citizens to Preserve Overton Park, Inc.* v. *Volpe, supra,* 401 U.S. at 416.[5] Petitioners' con-

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[4] There were, in fact, serious problems with the monitor data on which Shell relied to support its view that the model should be changed. Shell's own monitor data came from a short-lived (June-August 1976) program with continual changes of the sampling site (Appendix to EPA's brief in the court of appeals, Vol. 4, at 284), and the state monitor data were of only slight value because the closest monitor to the Shell plant was nearly 15 kilometers away (*Final Technical Support Document, supra,* Vol. II, Appendix G, at G-10).

[5] Petitioners' contention (78-535 Pet. 11; 78-536 Pet. 9, 12) that the court of appeals' review of the issues presented to it was deficient under the *Overton Park* standard is therefore

tentions that the court did not adequately review EPA's response to their objections to the MAXT-24 model finally come down to a disagreement with the court of appeals' conclusion in its February 13, 1978 decision (Pet. App. 42a-44a), incorporated by reference in the decision challenged here (Pet. App. 4a, 12a), that EPA cannot be held to have acted arbitrarily and capriciously simply because it employed a model that may fall short of "predictive perfection" (Pet. App. 43a). We submit that the court of appeals' conclusion is reasonable, and that petitioners' arguments regarding particular criticisms of the MAXT-24 model do not warrant further review by this Court.[6]

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incorrect. Nor do any of the other cases relied on by petitioners (78-535 Pet. 11-12; 78-536 Pet. 9-11) conflict with the standard of review employed here by the court of appeals.

[6] Section 110 of the Act, 42 U.S.C. 7410, requires that control plans be promulgated to "insure that the national standards are attained." Accordingly, the plans promulgated throughout the country to meet the 1972 deadline of the Act were developed with whatever analytical tools were available. Moreover, the courts of appeals have consistently recognized that EPA must resort to less than perfect tools to meet congressional deadlines. In *Texas* v. *EPA*, 499 F.2d 289, 301 (1974), cert. denied, 427 U.S. 905 (1976), the Fifth Circuit affirmed EPA's use of an admittedly "unreliable" model to set oxidant pollution emission limitations, 499 F.2d at 301. Similarly, the First and Ninth Circuits have upheld the use of imperfect models. *South Terminal Corp.* v. *EPA*, 504 F.2d 646, 662-663 (1st Cir. 1974); *Kennecott Copper Corp.* v. *Train*, 526 F.2d 1149, 1152 n.16 (9th Cir. 1975), cert. denied, 425 U.S. 935 (1976). In *Sierra Club* v. *EPA*, 540 F.2d 1114, 1136 (D.C. Cir. 1976), remanded on other grounds *sub nom. Montana Power Co.* v. *EPA*, 434 U.S. 809 (1977), the court

2. In No. 78-535, Shell contends (Pet. 8-10) that the court did not properly review EPA's decision to express emission limitations in terms of pounds of sulfur dioxide per MBTU of heat input rather than pounds per hour, as Shell had proposed. Shell concludes that a remand to EPA on this issue is required. The court, however, reviewed Shell's proposal and found that either it would yield less accurate results or it would pose an "impossible" enforcement task (Pet. App. 12a).

This is not an unreasonable conclusion. EPA had expressed concern that, if Shell's proposed measurement was used, Shell would be able to burn poor quality fuel (fuel with high sulfur content) at low combustion, or operating, rates, and thus meet emissions standards while violating ambient air standards. This might occur because at low operating rates, ground level concentrations of sulfur dioxide would increase as a result of the low plume rise associated with those operating rates. *Supplemental Technical Support Document, supra,* at 92-94. To avoid this impact on air quality, EPA would be required to adjust its model to determine effects at the different operating capacities, and to modify emissions limitations accordingly. *Ibid.* Shell's response (Pet. 7) was that it had installed heat exchangers in its stacks to "keep plume dispersion

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upheld the use of computer dispersion modeling as a rational method for evaluating proposed new pollution sources and stated that "lack of precision alone" would not defeat the approach.

capabilities equalized at all operating rates." This representation concerning Shell's equipment, however, provides no assurance that its emissions measurement proposal would constitute an easily enforceable, consistent system for specifying emissions limitations, especially at other plants subject to the control plan. EPA's concern for enforceability was apparent in the way it designed and justified most aspects of the control plan (see, *e.g.*, *Final Technical Support Document, supra*, Vol. I, at 34-41), and the court properly found this consideration an adequate ground for upholding EPA's decision not to replace its preferred emissions limitation measurement with that proposed by Shell.[7]

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[7] In any event, even assuming that heat exchangers like those used by Shell would be a generally feasible means of protecting against violation of ambient air standards, they constitute dispersion techniques, which under a provision in the Clean Air Act Amendments of 1977, enacted after EPA issued its *Supplemental Technical Support Document*, cannot be permitted to affect emissions limitations. Section 123, 91 Stat. 721, 42 U.S.C. 7423, provides that "the degree of emission limitation required for control of any air pollutant" under a control plan "shall not be affected in any manner by (1) so much of the stack height of any source as exceeds good engineering practice * * *, or (2) *any other dispersion technique*" (emphasis added). The House Report on these amendments indicates that one reason for this stricture was to maintain an "incentive for development of systems potentially capable of clean burning of coal—such as fluidized bed combustion." H.R. Rep. No. 95-294, 95th Cong., 1st Sess. 88 (1977). The report also speaks of the desirability of using more low-sulfur coal. *Id.* at 89.

CONCLUSION

The petition for a writ of certiorari should be denied.

Respectfully submitted.

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